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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 21 NUMBER 1 JANUARY 1990

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Computing Center Classes

COMPUTING AND TELECOMMUNICATIONS DIVISION
Argonne National Laboratory
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The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

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The Division operates a Cray X-MP/14 with UNICOS 5.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.1, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

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COMPUTING COMMENTS

RFP ISSUED FOR IBM 3033 REPLACEMENT

On Monday, November 20, 1989, Argonne issued a Request for Proposals (RFP) for the replacement of both IBM 3033 computers and the IBM 3042 Attached Processor. We are seeking an IBM 3084Q-class machine that is at least one-and-a-half times as fast as the combined speed of Argonne's existing IBM 3033 computers. The IBM 3084Q class of computer usually has multiple Central Processing Units (CPUs), each of which is larger than a single IBM 3033.

While the MVS/XA operating system is not necessary for this RFP, it is necessary that the replacement computer be capable of running MVS/XA to be able to accommodate potential future requirements. In addition, the hardware will include 64 million bytes of central storage and from 32 to 48 channels capable of a total input/output speed of 130 million bytes per second.

The proposals are due in January 1990. The replacement should be installed and operational and the existing IBM computers decommissioned in late FY1990.

COURSES IN SCIENTIFIC COMPUTATION PLANNED

The Computing and Telecommunications Division (CTD) Scientific Applications and Research Group is exploring the possibility of expanding the Division's educational offerings to include a variety of short courses in scientific computation. The focus would be on concepts and techniques useful in large-scale scientific computation, not on the use of specific software and hardware. However, the courses would deal with issues of implementation and would emphasize approaches suitable for vectorization and parallelization, where appropriate.

Guest lecturers would augment the instructional efforts of the Scientific Applications and Research staff. Themes under consideration for individual short courses are:

1. Preconditioned iterative methods in the solution of partial differential equations

2. Simulated annealing approaches to optimization

3. Optimization techniques for finite element methods

4. Boundary element methods

5. Topics in Monte Carlo methods

Because this is a new venture for CTD, we need your suggestions for course topics and your reactions to the topics proposed here. Comments about course format and length are also welcome. Please direct your responses to David Malon at extension 2-5174 or at electronic mail address B24753@ANLCV1.CTD.ANL.GOV.

MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASSES

The Mathematics and Computer Science Division's Advanced Computing Research Facility (ACRF) will offer several three-day introductory classes (9:00 a.m. to 4:30 p.m.) on parallel computing to familiarize potential users with the ACRF multiprocessors and parallel programming in general. The classes are limited to 22 people.

The classes will cover the following topics: (1) parallelizing compilers, (2) using packages for portable parallel programming (including the Monitor package and the Schedule package), (3) programming the Butterfly II, (4) programming the Active Memory Technology (AMT) Distributed Array Processor (DAP), (5) programming the Connection Machine-2, and (6) introducing the LAPACK project.

The classes will include lectures and hands-on work on the parallel computers in the ACRF. Fortran will be the primary programming language. Knowledge of Fortran and Unix is necessary. A portion of the third day will be devoted to each attendee's particular project.

The schedule of classes for 1990 is:

February 14, 15, and 16
April 18, 19, and 20
June 13, 14, and 15
August 22, 23, and 24
October 17, 18, and 19
December 5, 6, and 7

The parallel computers currently in the ACRF are:

4-processor Ardent Titan
8-processor Alliant FX/8
16-processor Intel iPSC-VX hypercube
20-processor Encore Multimax
24-processor Sequent Balance 21000
32-processor Intel iPSC-1 hypercube
32-processor Butterfly TC2000
1,024-processor AMT DAP
16,384-processor Thinking Machines CM-2

To register for a class, contact Teri Huml at (708) 972-7163 or at electronic mail address huml@mcs.anl.gov. There is a $25.00 registration fee per person for attendees from universities, federal laboratories, and government organizations and $100.00 per person for attendees from commercial organizations.

COMPUTING CLASSES SCHEDULED FOR JANUARY AND FEBRUARY 1990

During January 1990, CTD will offer seven classes, three seminars, and one demonstration. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Introduction to Computing Facilities and Services (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. There will be a demonstration of how to use CMS, Wylbur, MVS batch, VAX/VMS, and Cray UNICOS and of computer-based training. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

Using Computer-Based Training (one 1-hour demonstration) explains how to use available computer-based training (CBT) courses. CBT training documents for various CRWTH Computer Coursewares courses will be on display. After a brief demonstration of how to access and use any of the available courses, students will be able to try out the courses on terminals in the classroom.

Introduction to Wylbur for MVS Batch Computing (one 3-hour session) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the IBM MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit IBM MVS and Cray UNICOS batch jobs; and to review IBM MVS and Cray UNICOS batch output.

Introduction to VAX/VMS (one 3-hour session) is for first-time VAX/VMS users who need an overview of the features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up sub-directories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to EVE." Everyone registering for this class should request an account on the VAX 8700 before attending the class to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

Programming in VAX/VMS (one 3-hour session) acquaints VMS users with features of VMS. Topics include programming VAX Fortran; writing DCL (Digital Command Language) procedures; using the VMS system debugger, the runtime library, and system services; and reviewing VMS internals.

Using CMS on IBM 3270-Compatible Display Terminals (one 3-hour session) is for CMS users on an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or an ASCII terminal with the Hydra Protocol Converter. The class is for people who send or receive electronic mail; who organize information in files and obtain information from files; who create and modify data, programs, or text files; or who use applications packages such as Cuechart, SAS, Script, and Tellagraf. Everyone registering for the CMS class must have a VM/SP account before attending the class. To request an account, contact Account Services (Building 221, Room A-147, extension 2-5425).

Introduction to UNICOS (two 3-hour sessions) is for new users who want basic information on UNICOS on the Cray X-MP/14 high-performance computer. The class covers introductory material on the Unix file system, space management, and shell programming and how to submit jobs and to manage Cray files from the IBM MVS and VAX/VMS front-end stations.

Using Directory Manager on the VAX 8700 Computer (one 1-hour session) acquaints users with the VMS Directory Manager utility. The Directory Manager gives users a visual representation of their directory structure and allows users to work with their files and directory structure more easily.

SAS: An Overview of Statistics, Graphics, and Reporting Capabilities (one 1-hour seminar) looks at the various pieces of the SAS Software System available on the IBM MVS and CMS operating systems, on the VAX 8700 VMS operating system, and for IBM Personal Computers. We will explore the ways that you can use the many available procedures to help you do your work (from report writing to simple statistics to complex 3-D graphical output).

Available Alternatives for Visualizing Fluid Flow (one 2-hour seminar) describes the techniques applied to a fluid dynamics computer code to generate images for visual interpretation. Speakers will describe the use of alternative tools and will point out the capabilities, limitations, and effort necessary to use them.

Tellagraf: An Overview of Its Graphics Capabilities (one 1-hour seminar) presents a "top-down" view of the CA-Tellagraf interactive graphics software available on the IBM CMS and VAX 8700 VMS operating systems. It is also available on some of the divisional VAXes. Users can easily create word charts, line plots, bar and pie charts, and tables while retaining full control over the plot characteristics and data values. You can draw your completed plots on a wide variety of graphics hardcopy devices.

RACF CLASS FOR COST CENTER ADMINISTRATORS

On Friday, January 12, 1990, CTD will offer a class for persons who have responsibilities as cost center RACF administrators and their alternates (see the schedule appended to this *Newsletter).* The class will (1) outline relevant computer protection policies and practices; (2) explain how RACF is used with ANL's CMS, Wylbur, TSO, MVS, and CICS systems; and (3) review the most common occasions when RACF administrators exercise their RACF privileges. Class attendees should be familiar with one of the following IBM systems: CMS, Wylbur, or TSO.

CMS NEWS

CUTOVER FOR RACF-PROTECTED CMS MINIDISKS RESCHEDULED TO JANUARY 22, 1990

The Resource Access Control Facility (RACF) has been available on a voluntary basis for the protection of CMS minidisks. Many CMS users have already issued **RACSERVE** and **RACFREAD** commands to protect minidisks by controlling access to them. On Monday, January 22, 1990, CTD will limit access to any remaining unprotected minidisks. To assist RACF administrators in helping CMS users in their cost centers, CTD has rescheduled this action from the previously announced Monday, January 8, 1990, date. On January 22, 1990, CTD will define to RACF the remaining unprotected minidisks, and those minidisks will become accessible only to the owners. Unless the owner (CMS user) then issues the **RACFREAD** command or other RACF command for that minidisk, it will remain unavailable to other CMS users.

Before the January 22, 1989, cutover, CTD encourages users to issue the **RACSERVE** command to identify their minidisk to RACF and to issue **RACFREAD** commands to allow access by appropriate users. For additional information, see "RACFREAD Exec Allows Read Access to CMS Minidisks" in the December 1989 *Newsletter* and "Update on Plan to RACF-Protect All CMS Minidisks" in the October 1989 *Newsletter*. For information on using the **RACFREAD** command, enter (in CMS):

```
HELP RACFREAD
```

CRAY NEWS

NFS PROMOTES DISTRIBUTED USE OF CRAY FILES

Several months ago CTD installed the Network File System (NFS) on the Cray X-MP (see "Network File System Available for Cray Supercomputer" in the October 1989 *Newsletter).* This article describes in detail NFS and the security considerations for users and system administrators. NFS (developed by Sun MicroSystems, Inc.) allows workstations or computers to access disk files of other computers in a transparent manner.

Currently, there are 22 enrolled NFS users accessing the Cray **/n2** file system from their workstations. With NFS access to their files, users can edit their UNICOS files from their workstations rather than editing the files interactively on the Cray. This technique avoids the Cray swapping-and-interrupt-processing overhead and costs much less than interactively editing the file on the Cray.

Another benefit provided by NFS is the ability to run computationally intensive applications on the Cray and to store the output data on the **/n2** file system. Users are then able to peruse human-readable files to determine the completion status of their jobs. Alternatively, the file may be graphical data that can be processed directly from the **/n2** file system by a graphics workstation, thus eliminating the cost and overhead of moving the data between different computing systems.

CTD is using NFS on the Cray to demonstrate the feasibility and to determine the need of a more general NFS file service for the Laboratory. Individuals interested in having NFS access to Cray disk storage from their workstations should contact Account Services (Building 221, Room A-147, extension 2-5425).

CRAY IEEE FLOATING-POINT DATA CONVERSION ROUTINES AVAILABLE

Cray Research, Inc. has provided routines to convert binary numeric representations between the Cray and IEEE standard data formats. An early release of these routines is now available on the Argonne Cray X-MP/14. There are two subroutines: **cray2ieg** (which converts Cray Fortran data types to IEEE 32-bit Fortran data types) and **ieg2cray** (which converts IEEE 32-bit Fortran data types to Cray data types). There are eight types of conversions that these routines will perform, depending on the value of the parameter, TYPE. These conversions are summarized in Table 1.

Table 2: Conversion Types

TYPE	CRAY	IEEE
0	none	none
1	64-bit integer	32-bit integer
2	64-bit real	32-bit real
3	128-bit real	64-bit real
4	2x64-bit complex	2x32-bit complex
5	64-bit logical	32-bit logical
6	ASCII (no translation)	ASCII (no translation)
7	32-bit short integer	16-bit short integer
8	64-bit real	64-bit real

Documentation on using these two new routines is available via the **man cray2ieg** and **man ieg2cray** pages on the Cray.

These conversion routines are in the library **/new/ieee.a,** which you can access via the segldr command:

```
segldr -l /new/ieee.a pgm.o
```

where "pgm.o" is your compiled Fortran program. These routines will remain in **/new/ieee.a** until CTD installs UNICOS 6.0 in early 1991. At that time, we will include these pre-release UNICOS 6.0 routines in one of the standard UNICOS libraries.

RESEARCHING CACHE CONTROLLER PERFORMANCE BENEFITS

CTD in cooperation with the Amdahl Corporation plan to research the performance benefits obtained when the Laboratory's Amdahl 6380 disk drives are accessed by the Cray X-MP via a cache controller instead of the current non-cache controller. CTD investigations into using IBM 3380-compatible disks directly from the Cray X-MP computer have shown that the Cray X-MP can use the IBM-compatible disks effectively, although they do not have the peak performance of standard Cray disks. Amdahl is loaning cache memory to Argonne to determine if cache memory can improve the performance of Amdahl 6380 disks when these disks are used from the Cray. CTD is also using this opportunity to determine if any IBM-based applications would benefit from the existence of a cache controller.

A cache controller can significantly reduce the time required to perform input/output (I/O) operations by retaining user data in its cache memory. Thus, it can satisfy read requests for the data by referencing the cache memory instead of accessing the physical disk device. If the controller can satisfy the read I/O operation by using a copy of the data retained in the cache memory, the I/O operation does not incur the additional time required to move the read/write head of the disk drive to the correct location above the disk platter (called a seek delay) or the time required to wait for a revolution of the disk platter to take place that will bring the desired data under the read/write head of the disk (called rotational latency). Seek and latency delays typically dominate the time required to perform I/O operations. By reducing these delays, the controller can reduce the elapsed time of a batch job or improve the response time of an interactive session.

Because the Amdahl cache controller will also be accessible to the MVS batch system, CTD will use this opportunity to determine the benefits of a cache controller for IBM-based applications. Amdahl has provided CTD with a program that analyzes the I/O activity of applications and can determine the impact of cache on the performance of specification applications. Users who have IBM-based applications (either batch or interactive) dominated by I/O and are interested in participating in the cache controller tests should contact John Volmer at extension 2-5449 or at electronic mail address B32831@ANLVM.CTD.ANL.GOV.

GRAPHICS NEWS

SEMINAR ON USING DISSPLA GRAPHICS WITH X WINDOW WORKSTATIONS SCHEDULED

Many modern computer systems and workstations offer X Window for graphics display. X Window appears to be a *de facto* industry standard.

> Do you believe that you need to learn the X Window System to take advantage of new capabilities (such as interactive graphics)?
>
> Have you desired the capability to view at your workstation animations of computational results?
>
> Are you concerned about your investment of codes that use the Disspla graphics library?

If these issues are of interest to you, you should attend the seminar "Using Disspla Graphics with X Window Workstations" on Tuesday, February 20, 1990, from 1:00 p.m. to 3:00 p.m., to learn about the X Window System and how to tailor your Disspla programs to work with X Window to produce animation (see the schedule appended to this *Newsletter).* Familiarity with Fortran and Disspla is necessary.

MANAGEMENT INFORMATION SYSTEMS

MIS PROJECTS FUNDED FOR FY1990

The Administrative Data Processing Oversight Committee (ADPO) has received approval for the funding of the recommended administrative computing projects for FY1990. With ADPO funding:

1. Technical Information Services will convert its records and install and implement an online information retrieval system on the central VAX 8700 computer.
2. The Budget System project will work with a user advisory committee to determine the scope and direction the system should take.
3. One financial systems project will move Check Writing from the Entrex to the Management Science America software.
4. Another financial systems project will stabilize the user environment, the final phase of the Integrated Financial System installation.
5. The Benefits System will consolidate personnel data on retirement and insurance (as well as other benefits) and manage it more efficiently.
6. The Injury System will complete the Environment, Safety, and Health System.
7. The Integrated Materials Management System project will plan and develop specifications.

INTEGRATED FINANCIAL SYSTEM UPDATE

In December 1989, the Integrated Financial System (IFS) Project Team made the changes indicated by the users on the report selection criteria verification information circulated in November 1989. Anyone who still detects errors in their selection criteria should contact Nick Moore at extension 2-8075. The Project Team also began routing the IFS report output to the users' preferred destinations with the November 1989 reports. We will refine the destinations for the December 1989 reports as necessary.

Nick Moore presented detailed FY1990 plans for Information Expert at the Financial Applications to Effect Telesis (FACET) meeting held on November 14, 1989. These plans include (1) fixing known reporting difficulties, (2) continuing to address reporting difficulties as they occur, and (3) developing new reports (including travel reports). The Project Team also plans to conduct classes to teach users how to use the IFS reports and to develop their own ad hoc reports by using Information Expert. Other plans include (1) charging users for the computing costs associated with producing their reports, (2) providing the capability for users to maintain their own report selection criteria, and (3) allowing users to submit standard reports outside the regular reporting cycle. It is not clear whether users will want to submit their own standard monthly reports or have the system automatically produce the reports and route them to the users' destinations. Nick raised this issue at the FACET meeting; there were no objections to continuing to have the system automatically produce the financial reports.

Progress on all phases of the IFS project will be reported at FACET meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

MVS NEWS

HOW TO PROTECT MVS DATASETS WITH RACF

RACF can protect datasets in MVS from being read or written by anyone unless they are authorized. RACF can protect a dataset with either (1) a generic dataset profile or (2) a discrete profile for a specific dataset. Generic profiles can protect datasets (whether they currently exist or not) on any storage volume: PER, TEM, and DAT and offline datasets on tape. When you issue a RACF **ADDSD** command to create a dataset profile, you become the owner of that profile, and you and your RACF administrator control access privileges. You can create discrete RACF profiles for both existing and new datasets as long as they reside on DAT volumes. If you attempt to protect a dataset on a PER or TEM volume with a discrete RACF profile, you will receive an error message indicating that you are not authorized. NOTE: Protecting data on TEM volumes will not prevent deletion after seven days. Data on PER volumes will still be migrated after 60 days.

Users can protect datasets now with the DO RACFCOMM Wylbur exec, the CMS RACF command, or the TSO RACF command. For a list of related RACF commands, see Table 3. In the future, CTD plans to create generic RACF profiles for each userid to protect all MVS datasets not currently defined to RACF. At that time, to prohibit reading or writing by anyone except the owner, the default universal access will be NONE.

Table 3: RACF Commands for MVS Datasets

FUNCTION	RACF COMMAND
Create a generic profile	ADDSD 'data.set.name' GENERIC UACC(accesstype)
Permit userid or group access to a generic profile	PERMIT 'data.set.name' GENERIC ID(id1) ACCESS(accesstype)
Remove access to a generic profile	PERMIT 'data.set.name' GENERIC ID(id1) DELETE
Review generic dataset profile	LISTDSD DATASET('data.set.name') GENERIC ALL

where "data.set.name" is a dataset name of the form:

Cnnn.* Bnnnnn.*
Cnnn.level Bnnnnn.level
Cnnn.level.* Bnnnnn.level.*

"accesstype" is NONE(no access), READ, or UPDATE, and "id1" is a userid (Bnnnnn) or a RACF group name.
For additional options, see *Resource Access Control Facility (RACF) Command Language Reference* (SC28-0733-9).

MAINTENANCE UPGRADES TO DFSORT VERSION 1.10.0 AVAILABLE FOR TESTING IN MVS BATCH

Maintenance upgrades to Version 1.10.0 of IBM's DFSORT sort utility are now available for user testing in MVS batch. The upgrades fix a variety of bugs.

To test the new version of DFSORT before February 12, 1990, use the following JCL:

```
//stepname       EXEC  SORT,LIBRARY='SYS2.SORTLIB'
//SORT.STEPLIB   DD    DSN=SYS2.SORTLINK,DISP=SHR
```

If there are no major difficulties, this test version of DFSORT will become the production version on Monday, February 12, 1990. At this time, CTD will rename the SYS1 datasets to SYS0 and the SYS2 datasets to SYS1, and you will no longer need to specify them in your JCL. Users who experience difficulties should contact the User Services consultants at extension 2-5405.

MAINTENANCE UPGRADES TO PL/I OPTIMIZING COMPILER VERSION 1.5.1 AVAILABLE FOR TESTING IN MVS BATCH

Maintenance upgrades to Version 1.5.1 of the PL/I Optimizing Compiler are available in MVS batch for user testing. The upgrades fix a variety of bugs.

To test the updated Version 1.5.1 of the PL/I Optimizing Compiler in MVS batch, code the following parameters on the EXEC statement of the PL/I Optimizing Compiler cataloged procedure you have been using:

```
STEPLIB='SYS2.PLI.OPT.LINKLIB',
TASKLIB='SYS2.PLITASK',          (for multitasking)
LIBRARY='SYS2.PLIBASE'
```

For cataloged procedures with GO steps, include the following additional statement:

```
//GO.STEPLIB DD DSN=SYS2.PLI.OPT.TRANSLIB,DISP=SHR
```

For example, to compile, linkedit, and go, code:

```
//stepname   EXEC PLOCEG,
//           STEPLIB='SYS2.PLI.OPT.LINKLIB',
//           TASKLIB='SYS2.PLITASK',  (for multitasking)
//           LIBRARY='SYS2.PLIBASE'
//GO.STEPLIB DD   DSN=SYS2.PLI.OPT.TRANSLIB,DISP=SHR
```

If there are no major difficulties, this test version of the PL/I Optimizing Compiler will become the production version on Monday, February 12, 1990. At this time, CTD will rename the SYS1 datasets to SYS0 and the SYS2 datasets to SYS1. You will no longer need to specify them in your JCL. Users who experience difficulties should contact the User Services consultants at extension 2-5405.

MAINTENANCE UPDATES TO VS FORTRAN VERSION 2.3.0 OF THE IBM VS FORTRAN COMPILER AND LIBRARY AVAILABLE FOR TESTING IN MVS BATCH

Maintenance updates to Version 2.3.0 of the IBM VS Fortran program product are now available for testing in MVS batch. The version of VS Fortran in current production in MVS is Version 2.3.0. The upgrades fix a variety of bugs.

To test the updated version of VS Fortran 2.3.0 before February 12, 1990, use the following JCL:

```
//stepname EXEC FORTVxxx,
//         STEPLIB='SYS2.VSF2COMP',  (for compile steps)
//         LIBRARY='SYS2.VSF2FORT', (for linkage editor
                                       or loader steps)
//         GOLIB='SYS2.VSF2LOAD'    (for loader or GO
                                       steps)
```

VS Fortran Version 2.3.0 is documented in *VS Fortran Version 2 Language and Library Reference* (SC26-4221) and *VS Fortran Version 2 Programming Guide* (SC26-4222), available soon at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

If there are no difficulties, CTD will make updated Version 2.3.0 the production version on Monday, February 12, 1990. At this time, CTD will rename the SYS1 datasets to SYS0 and the SYS2 datasets to SYS1. You will no longer need to specify them in your JCL. Users who experience difficulties should contact the User Services consultants at extension 2-5405.

PERSONAL COMPUTING AND WORKSTATIONS

NCSA TELNET VERSION 2.3 NOW AVAILABLE FOR THE APPLE MACINTOSH

CTD has begun to distribute a new version (2.3) of the National Center for Supercomputing Applications (NCSA) Telnet program for the Apple Macintosh. Version 2.3 includes the following enhancements and fixes to bugs:

1. Apple MacTCP driver. With the MacTCP drivers, you can run more than one TCP application at once. For example, you can run NCSA Telnet and someone else's file transfer protocol (FTP) client program under Multifinder at the same time.

2. Screens larger than 24 lines tall. NCSA has added Vtwrap to Session Window.

3. Password files now in the system folder instead of specified with a full path name. It is more convenient for switching directories and disks across FTP sessions.

Additional capabilities and bug fixes are in *NCSA Telnet for the Macintosh.* This document and a Version 2.3 diskette are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies). Also, the AlisaShare Public Volume is available to all Apple Macintosh users on the Laboratory-Wide Appletalk (see "AlisaShare Public Volume Available to All Apple Macintosh Users on Laboratory-Wide AppleTalk" in this *Newsletter).*

ALISASHARE PUBLIC VOLUME AVAILABLE TO ALL APPLE MACINTOSH USERS ON LABORATORY-WIDE APPLETALK

CTD is evaluating the use of AlisaShare as a prototype service for network distribution of selected Apple Macintosh applications. The entire ANL community can legally share these applications because they are Apple system software or public domain software. An AlisaShare read-only volume called "Public Volume" is available in AppleTalk zone "Public AlisaTalk." Any Apple Macintosh connected to the Laboratory-wide AppleTalk network that has AppleShare Version 2.0 or later can access Public Volume. Currently, it contains several Apple Macintosh applications and files that are of general interest to Apple Macintosh users. CTD is making these applications and files on this volume available to all Apple Macintosh users on the Laboratory-wide AppleTalk. We plan to provide selected applications and files on Public Volume that we recommend for use by the Laboratory Apple Macintosh community. This volume is located on a central VAX cluster disk and access to it is provided by the VAX 8250.

Currently, Public Volume contains:

- Apple Macintosh System Software Update 6.0.3. Apple's new LaserWriter Driver and LaserPrep Version 6.0 files have replaced the Version 5.2 files distributed with 6.0.3.
- The Northwestern University virus Disinfectant application that can be used to repair disks affected by some of the known viruses that affect Apple Macintoshes.
- Teach Text--a general-purpose Apple editor.
- A folder containing the National Center for Supercomputing Applications (NCSA) Telnet, tn3270, and config.tel files.
- A folder containing NCSA Image--a data analysis and scientific visualization tool for the Apple Macintosh. Image provides a variety of methods for visualizing a set of data points. Image can use color, contour plots, 3-D plots, shaded data plots, XY graphs, and dither plots to visualize sets of data points. For additional information on Image, see "Visual Analysis of Data with NCSA ImageTool" in the August 1989 *Newsletter*.
- An AlisaTalk folder that contains the AlisaTerminal application and an AlisaShare folder that allows VAX/VMS passwords longer than eight characters and miscellaneous other AlisaTalk files.

To use Public Volume:

1. Select the AppleShare file server in the chooser box.
2. Scroll down the AppleTalk zones until Public AlisaTalk appears.
3. Select this zone and double click the server "CTDVAXserver" that appears in the file server name box in the upper right-hand corner of the chooser box.
4. Select the Guest account when the VMS user identification dialog box appears. Within a short time, Public Volume will appear as an Apple Macintosh disk on the right side of the finder window. You can open this disk like any other Apple Macintosh disk.

If you have suggestions for additional applications or files that you would like to see installed on Public Volume, contact Fred Moszur at extension 2-7419.

VAX/VMS NEWS

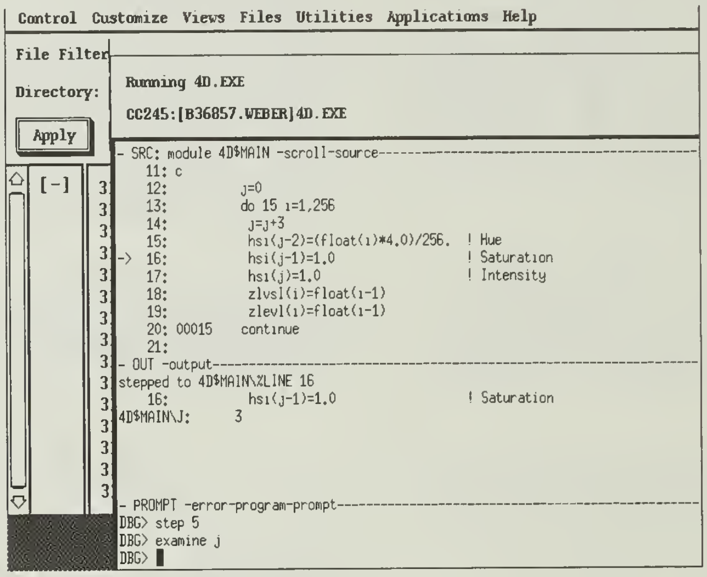
ENHANCEMENTS OF VMS 5.1

VAX/VMS Version 5.1 has been running on the central VAX cluster for several months. You should be aware of the new capabilities that improve the VMS environment. There is DECwindows client software, a full screen capability for the symbolic debugger inside and outside the DECwindows environment, and several enhancements to the VMS MAIL utility. There are also several other miscellaneous capabilities (such as new EVE features and multiple line recall of the command line from within utilities).

The DECwindows client software allows DEC workstation users to run DECwindows on their workstations through DECnet so that the window manager application does not have to run on their workstations. Apple Macintosh II users running TSSNET and some window environment program (such as White Pines "Exodus") can also use DECwindows. For details on running DECwindows on the VAX 8700 computer and to have the output appear either on your DEC workstation or Apple Macintosh II, refer to the *VMS DECwindows User's Guide* (AA-MG18A-TE), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

The full screen Symbolic Debugger is another useful addition since VMS 5.1. Not only is it available in the DECwindows environment (see Figure 1) but also on VT-type terminals (see Figure 2). To use the debugger, first compile and link your programs to the debugger as follows:

```
$ FORTRAN/NOOPTIMIZE/DEBUG PROGRAM
$ LINK/DEBUG PROGRAM
```



```
Running 4D.EXE

CC245:[B36857.WEBER]4D.EXE
```

```
- SRC: module 4D$MAIN -scroll-source-----------------------------------------
    11: c
    12:          j=0
    13:          do 15 i=1,256
    14:           j=j+3
    15:           hsi(j-2)=(float(i)*4.0)/256.  ! Hue
->  16:           hsi(j-1)=1.0                  ! Saturation
    17:           hsi(j)=1.0                    ! Intensity
    18:           zlvsl(i)=float(i-1)
    19:           zlevl(i)=float(i-1)
    20: 00015    continue
    21:
- OUT -output-----------------------------------------------------------------
stepped to 4D$MAIN\%LINE 16
    16:           hsi(j-1)=1.0                  ! Saturation
4D$MAIN\J:      3




- PROMPT -error-program-prompt------------------------------------------------
DBG> step 5
DBG> examine j
DBG> ▌
```

Figure 1: Symbolic Debugger in the DECwindows Environment

When you run your program, it will automatically go into the line-by-line mode of the debugger. To switch into full screen mode, enter:

```
DBG> SET MODE SCREEN
```

For further information on the Symbolic Debugger, refer to the *VMS Debugger Manual* (AA-LA59B-TE), which is available at the Document Distribution Counter, or call the User Services consultants at extension 2-5405.

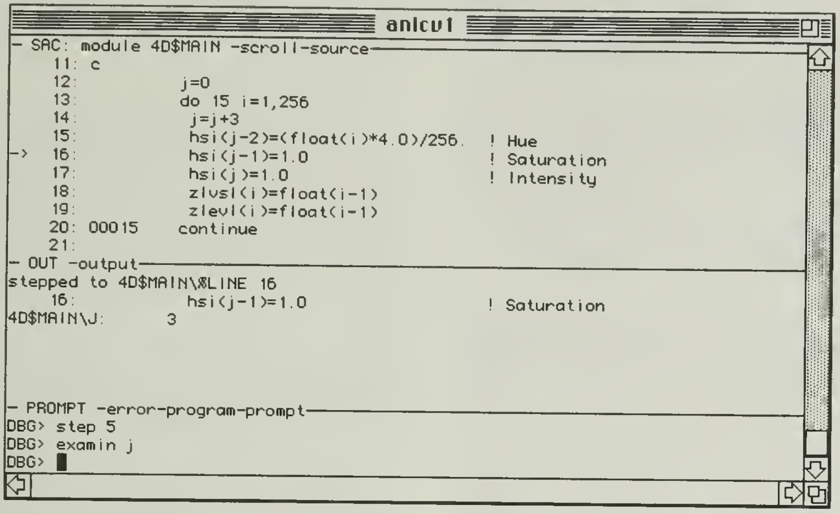
The DEC MAIL utility also offers some enhancements. The **SEND**, **FORWARD**, and **REPLY** commands now accept the /CC_PROMPT qualifier that allows the sender to send carbon copies of the note to other users at the same time. For example, you can enter:

```
MAIL> SEND/CC_PROMPT
TO: B11111
CC: B12345, B98765, GATEWAY::"B22222@ANLVM"
SUBJ:
```

Use the mail **SET** command to set the CC prompt permanently. VMS 5.1 MAIL allows you to delete ranges and lists of files. For example, to delete mail files 17 through 19 in the current mail folder, enter:

```
MAIL> DELETE 17-19
```

VMS Version 5.1 adds other features. EDT emulation is available for the EVE editor. (For details on using the EVE editor in EDT mode, see "Using EDT Emulation in the EVE Editor" in the August 1989 *Newsletter.)* Multiple line recall is now available from within utilities. Along with this capability, you can issue the command **RECALL/ALL** to see the previous commands you have entered. Then you can recall specific long DCL commands by number instead of having to retype them.



```
- SAC: module 4D$MAIN -scroll-source
    11:  c
    12:           j=0
    13:           do 15 i=1,256
    14:            j=j+3
    15:            hsi(j-2)=(float(i)*4.0)/256.   ! Hue
->  16:            hsi(j-1)=1.0                    ! Saturation
    17:            hsi(j)=1.0                      ! Intensity
    18:            zlvsl(i)=float(i-1)
    19:            zlevl(i)=float(i-1)
    20: 00015     continue
    21:
- OUT -output
stepped to 4D$MAIN\%LINE 16
    16:            hsi(j-1)=1.0                    ! Saturation
4D$MAIN\J:      3



- PROMPT -error-program-prompt
DBG> step 5
DBG> examin j
DBG> █
```

Figure 2: Symbolic Debugger User Interface on VT-Type Terminals

If you have any questions about features, call the User Services consultants (extension 2-5405) or Dave Lifka (extension 2-3251).

ANSYS TUTORIAL SCHEDULED

An ANSYS tutorial, "Introduction to ANSYS" (on February 14 and 15, 1990, from 9:00 a.m. to noon and from 1:00 p.m. to 5:00 p.m.), will provide interested users with a basic working knowledge of the ANSYS finite element code (see the schedule appended to this *Newsletter).* There will be a brief introduction to the VAX/VMS operating system for those participants unfamiliar with VAX/VMS. The participants will learn how (1) to access the ANSYS program, (2) to set up input for a problem, (3) to execute it interactively or in batch, and (4) to obtain results and to display them graphically. This tutorial includes several hands-on interactive exercises on the central VAX 8700 computer. No prior knowledge of finite element analysis, ANSYS code, or VAX/VMS is necessary.

All participants should have an account on the VAX 8700 computer. To get an account, contact Account Services (Building 221, Room A-147, extension 2-5425). The class size is limited to 14 people. The charge for this tutorial is $150. The deadline for registering is Friday, February 2, 1990. CTD will order ANSYS documents on request.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD DECEMBER 5, 1989

Dotti Bingaman (Environmental Assessment and Information Sciences) opened the meeting at 3:06 p.m.

Computer Schedule for the Holidays. Gary Schlesselman (Computing and Telecommunications) reported on the plans for computer operations over the Christmas and New Year's holidays. (See Christmas Through New Year's Holiday and Laboratory Closing Service Schedule" in the December 1989 *Newsletter.)*

Change in Scheduled Computer Maintenance. Gary announced changes to the regularly scheduled maintenance of the computers and software. (See "Increased Availability of Central Computers" in the December 1989 *Newsletter.)*

RACF Group Administration Update. Gary then reported on the status of changes to RACF to allow more than one RACF group administrator. (See "Special RACF Commands for Cost Center RACF Administrators" in the December 1989 *Newsletter.)* There will be a class on January 12, 1990, for administrators. (See "RACF Class for Cost Center Administrators" in this *Newsletter.)*

IBM Replacement Project Status. Jerry Davison (Computing and Telecommunications) reported on the status of the replacement of the IBM 3033s with a 3084Q class computer. On November 20, 1989, Argonne issued a Request for Proposals (RFPs) to about 20 vendors. The bids are due back by January 8, 1989. The evaluation of the bids should be done by the end of February 1990, the vendor selection made by the end of March 1990, and the contract awarded in early April 1990. (See RFP Issued for IBM 3033 Replacement" in this *Newsletter.)*

If the selected machine is an IBM 3084, we will have to use a new version of VM. We plan to bring this version up on the current VM machine first. This procedure cannot be done before the final selection for two reasons: It will only be necessary for specific computer models, and the cost of the package is substantial.

The site preparation should begin about the end of March 1990 with the replacement installed and operational in early July 1990. If all goes well and the system passes the system and user tests, we could decommission the IBM 3033s at the end of July 1990. Users may be able to begin using the replacement machine in June 1990.

Network Activities. Larry Amiot (Computing and Telecommunications) reported on the current status of networks at the Laboratory (see "ESnet Becomes Operational" in the December 1989 *Newsletter)* and described some recent Laboratory-wide network difficulties. Currently, ESnet is running, and all communication to the National Magnetic Fusion Energy Computer Center (NMFECC) is using the ESnet backbone. Since MFEnet II will be using this backbone, CTD is developing a transition plan to move from MFEnet I to MFEnet II. We anticipate that MFEnet I will disappear in early 1990. Recent experience on ESnet indicates the backbone is fairly stable with occasional difficulties with the T1 links. At times, response may be slow or sessions broken, but data transfer appears reliable.

On December 4, 1989, we changed the addresses of the computers residing on the backbone segment of the Laboratory-wide Transmission Control Protocol/Internet Protocol (TCP/IP) Ethernet. Now, all kinetics boxes connected to the backbone use the TCP/IP subnet feature. The currently connected Gator boxes, Ridge computers, and NBIs do not understand subnetting protocols. Subnetting allows the Argonne network address to be simplified and made clearer.

Recently, there have been several difficulties with the networks. A fiber-optic cable was recently cut, which affected LANmark, Asynchronous Data Interfaces, and telephones to certain areas. A copper cable was also cut, disconnecting several Network Job Entry stations. Software reliability and bugs have caused some difficulties, particularly with the Gator box software reliability, the FAL TCP/IP product from IBM, and the VMS tn3270 script.

There is the possibility of packet storms on the network, especially with many things happening at once. As an example, a data acquisition system was recently added to the network at the same time CTD performed the TCP/IP backbone address change, and some broadcast addresses were not changed. This addition caused several types of packets to be retransmitted by numerous machines, seriously degrading network performances.

To improve the reliability of the network and to avoid impacting other users, Larry gave several suggestions that all network users should try to follow:

1. Do not make changes (1) during prime time, (2) when other changes are planned, (3) on Fridays, (4) before holidays, or (5) just before you leave for several days.

2. Do not acquire or install new versions of hardware or software without consulting with CTD first.

3. Do not install new systems on the Laboratory-wide Ethernet without first running in a testbed configuration isolated from the rest of the network community.

4. Report all difficulties to CTD Operations as soon as possible.
5. Isolate division local area networks from the Laboratory-wide network with routers.
6. Participate in the newly formed Network Managers Working Group, which will establish some policies and will provide communication on networking at Argonne.

Status and Upgrading of Modem Pool. Bob McMahon (Computing and Telecommunications) reported on the current status and plans for modems at Argonne on the Private Branch Exchange (PBX). In August 1989, we changed the modem selection procedure from a top-down hunt to a longest idle selection. This change has helped, but some people still get an answer from PBX but no whistle from the modem. CTD checks the modems regularly, but difficulties do not always show up. Currently, if the user has trouble making a connection, the best advice is to try again. A different modem will be selected. The operators cannot do anything to fix the modems at night when service personnel are not present.

There are three different modem groups: Group 64 (6 modems) with Microcom Network Protocol (MNP) Level 3 off with baud rates from 1200 to 2400, Group 65 (21 modems) with MNP Level 3 on with baud rates from 300 to 1200, and Group 66 (32 modems) with MNP Level 3 on with baud rates from 1200 to 2400. Data compression with error checking (MNP Level 5) costs $50 per modem. However, the PBX requires special PROMs, so the charge may be higher. The current modem pool does not allow baud rates above 2400, Kermit file transfer protocol, fallback speed changing, and MNP Level 5 data compression and error correction. Currently, CTD is looking at several modems with baud rate ranges from 9600 to 19200 bits per second. One of the needs CTD must consider with any new modem is that it be able to work with modems from other manufacturers.

The CUG meeting adjourned at 4:33 p.m.

Ken Miles, CUG Secretary

MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD NOVEMBER 9, 1989

Chairperson Mary Warren (Energy, Environmental, and Biological Research) opened the meeting at 12:05 p.m.

The first item on the agenda was a presentation by Gail Pieper (Mathematics and Computer Science). She described her experience producing a one-page, pocket-size reference guide for a computer subprogram. This job was a challenge because the information was not only lengthy (on five 8-1/2 x 11-inch sheets) but exacting and complex; it had to be grouped in a particular way and presented in a particular format (long horizontal lines of data) to be understood. Since the type size had to be very small for all the required information to fit on one double-sided page, Gail had the text typeset and then reduced to achieve the greatest degree of clarity. She mentioned the importance of choosing a font that remains legible when reduced. She separated the blocks of information with colored stripes but discussed the possibility of using very light screens to separate material as well, perhaps even using one on every other line to make reading across easier. The final product was printed on 8-1/2 x 11-inch heavy stock and folded twice to a size of approximately 3-5/8 x 8-1/2 inches.

Gail suggested that it helps to make up a quick draft for this type of job and also warned about potential difficulties getting permission to use color on any material considered a public document. She suggested finding a similar type of document that has already been printed with color to show the DOE Printing Officer (Operations Management Support Division) that a precedent has been set.

Rich Nixon (Graphic Arts) distributed the Graphic Arts FY1990 price list for design work, photography, printing, and binding. Copies are available in Building 222, Room A-114. He also discussed three new pieces of equipment:

1. A sign making device that can be applied to metal, paper, walls, etc. will be available soon. While testing this machine, customers may be able to get jobs at less cost. For more information about prices, availability of color, and other features of the sign maker, call Lee Wagar (extension 2-5603).

2. The labeler (or addresser), installed in the bindery, prints mailing information directly on envelopes, labels, or sheets of paper that can be up to 1/16-inch thick (according to the manufacturer). Graphic Arts has not tested this capability. It will even accept 11 x 13-inch envelopes with metal clasps. The addresser is computer-driven; Graphic Arts is exploring different software programs to run the device. For information on sending files to this piece of equipment, call Lee Wagar (extension 2-5603).

3. The folder/nester, installed in the bindery, can stuff up to 3,000 envelopes per hour (according to the manufacturer), thus taking half as much time as stuffing by hand. The folder/nester in Graphic Arts stuffs about 1,500 envelopes per hour. This device can take one paper (up to 11 x 17 inches), two papers, or one paper and one card; fold them if necessary; open the envelope; insert the material in the envelope; wet the seal; and close the envelope. Size 10 envelopes work well; flaps cannot exceed 2-1/2 inches. Since Graphic Arts has only used the folder/nester for a few jobs, the costs are not yet available. For more information, call Bill Jepsen (extension 2-8159).

The next meeting will be held on Thursday, January 11, 1990, at noon in Building 201, Room 274.

Marita Moniger, Graphic Arts Users Group Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD DECEMBER 13, 1989

Bob Kampwirth (Materials Science) opened the meeting (actually an Apple Macintosh seminar called "Macintosh in the R&D Environment") shortly after 10:00 a.m in the Cafeteria Conference Rooms A and B. The one room was for the seminars; the other room was for the hardware and software.

Sunil Chawla (Apple Computer) and Eliot Axelrod (Apple Computer) gave the two morning seminars. Sunil gave an overview of visualization on the Apple Macintosh. Eliot talked about the upcoming revision to the Apple Macintosh operating system, System 7.0. He also demonstrated the new Apple Macintosh IIci and the new Apple Macintosh portable computers.

After a short lunch break, a series of seminars featured the Apple Macintosh as it is used at Argonne. Rodney East (Materials Science), John Mattson (Materials Science), and Josh Stein (Materials Science) talked about Hypercard as a front-end for data acquisition and analysis. A series of connectivity seminars covered a Laboratory network overview by Linda Winkler (Computing and Telecommunications); AlisaShare by Paul Steimle (Environmental Assessment and Information Sciences); Quickmail by Rodney East (Materials Science), Bill Shack (Materials and Components Technology), and Bob Popper (Materials and Components Technology); and Mail*Link/Gator Mail by Bob Popper (Materials and Components Technology) and Bill Shack (Materials and Components Technology). Nestor Zaluzec (Materials Science) reviewed Image processing and analysis. Bill Shack (Materials and Components Technology) and Rodney East (Materials Science) presented the Materials and Components Technology and Materials Science approach to the Apple Macintosh office. Diane Livengood (Materials Science) explained the secretarial use of the Apple Macintosh in this environment.

Dr. Samuel Bogosh (Chorus Supercomputer) and Prof. Paul Velleman (Odesta) were the final seminar speakers. Dr. Bogosh talked about high-speed processing on the Apple Macintosh by using the Chorus Supercomputer. Prof. Velleman talked about the use of DataDesk for statistical and graphical analysis of data.

Software and hardware demonstrations in the exhibit area included STELLA, CACHE, 510M, Mathematica, DataDesk, Labview 2.0, Slicer/Dicer, Image, DataScope, Milo, Swivel 3D, Math Type, ParaFont, and Wingz.

At the January 1990 meeting, Ashton-Tate will demonstrate their spreadsheet (Full Impact 2.0) and their word processor (Full Write).

At the February 1990 meeting, Alan Krauss (Chemistry) and Ralph Leonard (Chemical Technology) will demonstrate two other spreadsheets, Wingz and Excel 2.2.

The Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

Ralph Leonard, Macintosh Users Group Secretary

WORKLOAD STATISTICS (OCTOBER 31 THROUGH NOVEMBER 29, 1989)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,241	1,235	467
Wylbur	1,660	1,669	380
MVS TSO	54	54	8
CICS	1,660	1,669	85
MVS Batch	2,107	2,109	625
VAX/VMS	453	465	266
Cray	419	413	118
All Systems	2,107	2,109	934

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
INTERACTIVE						
CMS	12,203	2,352	2,081	16,636	36,456.1	107.68
Wylbur	7,684	578	589	8,851	8,303.6	10.04
MVS TSO	147	1	0	148	128.8	0.51
CICS	49	42	25	116	0.0	4.54
VAX/VMS	7,454	665	836	8,955	11,406.4	168.92
Cray	158	58	57	273	1,044.2	6.34
IBM BATCH						
Class U	9,704	2,062	1,376	13,142	n.a.	38.73
Class W	15,310	1,576	1,354	18,240	n.a.	141.31
Class X	0	1,016	43	1,059	n.a.	72.50
Class Y	0	0	1,112	1,112	n.a.	37.88
Nonmain	17,837	2,079	1,624	21,540	n.a.	0.00
Total	42,851	6,733	5,509	55,093	n.a.	290.42
CRAY BATCH						
u	158	58	57	273	n.a.	6.34
w	2,165	282	367	2,814	n.a.	177.53
x	1,070	185	295	1,550	n.a.	85.85
y	4,729	1,518	1,738	7,985	n.a.	201.08
Total	8,122	2,043	2,457	12,622	n.a.	470.80
VMS BATCH						
W_BATCH	1,015	836	599	2,450	n.a.	24.37
X_BATCH	4	39	10	53	n.a.	63.32
Y_BATCH	0	4	27	31	n.a.	1.24
Total	1,019	879	636	2,534	n.a.	88.93

INPUT/OUTPUT

Lines Printed	
Local	61,723,342
Remote	46,458,730
Fiche	31,767,348
Cards Punched-Local Only	36,255
Tape Mounts	7,920
Microfiche Developed	3,894
Microfiche Frames Developed	673,693

GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	93	n.a.
Matrix 35mm Color	154	410
Matrix-8 x 10	81	86
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	99	882
35mm Black/White/Sprocketed	1	8
35mm Color	17	136
16mm Black/White/Sprocketed	0	0
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	24,356
New Tapes Saved	660
Tapes Released	1,071
Datasets Exported to Tape	2,843
Datasets Imported from Tape	531

* n.a. = not applicable

AVAILABILITY STATISTICS, BY SERVICE (OCTOBER 31 THROUGH NOVEMBER 29, 1989)

	Monthly Totals	Scheduled			Unscheduled		
		Hardware	Software	Other	Hardware	Software	Other
CMS							
All Shifts							
Interruptions	12.00	3.00	7.00		1.00	1.00	
Hrs Unavailable	10.88	3.03	7.28		0.50	0.06	
MTF/Unscheduled	354.55				709.11	709.11	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	10.00	2.00	6.00		1.00	1.00	
Hrs Unavailable	9.23	2.13	6.53		0.50	0.06	
MTF/Unscheduled	127.38				254.76	254.76	
WYLBUR							
All Shifts							
Interruptions	16.00	4.00	10.00		1.00	1.00	
Hrs Unavailable	18.25	5.01	12.41		0.40	0.41	
MTF/Unscheduled	350.87				701.75	701.75	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	14.00	3.00	9.00		1.00	1.00	
Hrs Unavailable	16.68	4.11	11.75		0.40	0.41	
MTF/Unscheduled	123.65				247.31	247.31	
MVS TSO							
All Shifts							
Interruptions	16.00	4.00	10.00		1.00	1.00	
Hrs Unavailable	18.30	5.01	12.41		0.45	0.41	
MTF/Unscheduled	350.85				701.70	701.70	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	14.00	3.00	9.00		1.00	1.00	
Hrs Unavailable	16.73	4.11	11.75		0.45	0.41	
MTF/Unscheduled	123.63				247.26	247.26	
JES3							
All Shifts							
Interruptions	15.00	3.00	10.00			2.00	
Hrs Unavailable	15.91	3.58	11.88			0.45	
MTF/Unscheduled	352.04					352.04	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	14.00	3.00	9.00			2.00	
Hrs Unavailable	15.25	3.58	11.21			0.45	
MTF/Unscheduled	124.37					124.37	
CICS							
All Shifts							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable							
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable							
MTF/Unscheduled							
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	11.00		4.00		1.00	5.00	1.00
Hrs Unavailable	10.65		6.03		0.50	3.78	0.33
MTF/Unscheduled	101.33				709.35	141.87	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	7.00		2.00		1.00	3.00	1.00
Hrs Unavailable	4.61		0.86		0.50	2.91	0.33
MTF/Unscheduled	51.87				259.38	86.46	
CRAY							
All Shifts							
Interruptions	10.00	8.00				2.00	
Hrs Unavailable	17.80	17.15				0.65	
MTF/Unscheduled	351.10					351.10	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00					2.00	
Hrs Unavailable	0.65					0.65	
MTF/Unscheduled	131.67					131.67	

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (OCTOBER 31 THROUGH NOVEMBER 29, 1989)

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
	ADVANCED PHOTON SOURCE						
130	ADVANCED PHOTON SOURCE DIV	$486	$254	$0	$546	$161	$1,447
272	ADVANCED PHOTON SOURCE	$35	$0	$858	$23	$55	$971
341	APS ACCELERATOR PHYSICS	$87	$2,001	$1	$64	$168	$2,321
345	APS VACUUM	$0	$1,686	$0	$26	$786	$2,498
347	APS CONTROL	$52	$3	$0	$2	$27	$84
348	APS MAGNETS	$74	$0	$0	$1	$3	$77
349	APS POWER SUPPLIES	$49	$0	$0	$2	$130	$182
350	APS DIVISION MANAGEMENT	$8	$0	$0	$0	$0	$8
351	APS INSERTION DEVICES	$4	$0	$0	$0	$0	$4
360	APS CONVENTIONAL FACILITIES	$99	$1	$0	$9	$103	$211
361	APS PROJECT DIRECTION	$12	$0	$0	$0	$0	$12
362	APS MANAGEMENT GENERAL	$16	$0	$0	$0	$0	$16
SUBTOTAL		$922	$3,944	$859	$673	$1,433	$7,831
	ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	BIO & MED RES DIV	$2,410	$2,359	$258	$1,372	$1,571	$7,970
125	TECHNOLOGY TRANSFER CENTER	$47	$0	$0	$2	$36	$85
149	ENVIRONMENTAL RESEARCH DIV	$2,997	$465	$1,977	$823	$991	$7,253
155	ENERGY SYSTEMS DIVISION	$1,542	$137	$419	$325	$399	$2,823
165	ENV ASSESS & INFO SCI DIV	$6,634	$11,400	$1,460	$2,547	$3,879	$25,920
174	ENER/ENV/BIO PROG DIR	$36	$0	$0	$3	$0	$39
190	ENERGY & ENVIR SYST DIV	$1	$0	$0	$0	$5	$6
197	SPECIAL PROJECTS OFFICE	$177	$3	$0	$14	$52	$245
246	ES-NAT'L ENERGY SOFTWARE CTR	$122	$0	$0	$651	$631	$1,405
274	ENER/ENV/BIO RES PROG ADM	$95	$0	$0	$3	$83	$181
SUBTOTAL		$14,062	$14,365	$4,114	$5,739	$7,647	$45,927
	ENGINEERING RESEARCH						
102	EBR-II PROJECT-ANL WEST	$2,497	$57	$1,163	$531	$56	$4,304
107	CHEMICAL TECHNOLOGY DIVISION	$906	$391	$0	$1,121	$347	$2,765
112	REACTOR ANAL & SAFETY	$19,074	$1,483	$3,564	$7,220	$5,838	$37,179
114	MATLS & COMP TECH DIV	$4,815	$2,644	$34	$2,602	$1,526	$11,621
115	ENGINEERING PHYSICS DIVISION	$34,515	$2,227	$37,077	$7,783	$10,380	$91,982
117	APPLIED PHYSICS-ANL WEST	$4,600	$1	$10,306	$325	$339	$15,571
118	REACTOR EXP & EXAM DIV	$4,764	$309	$2	$142	$168	$5,385
119	ANALYTICAL LABORATORY ANL-WES	$0	$0	$0	$0	$36	$36
171	ENGRG RES PROG DIR	$4	$0	$0	$0	$86	$90
211	ENGINEERING PHYSICS DIVISION	$47	$0	$0	$0	$2,830	$2,877
269	CHEM TECH DIV-ANALYTICAL CHEM	$78	$0	$0	$1	$119	$198
271	ENGRG RES PROG ADMIN	$228	$0	$0	$7	$185	$420
SUBTOTAL		$71,527	$7,112	$52,146	$19,733	$21,910	$172,428
	PHYSICAL RESEARCH						
105	MATERIALS SCIENCE DIVISION	$999	$7,332	$3,966	$3,122	$1,933	$17,352
109	PHYSICS DIV	$2,222	$1,469	$1,784	$1,740	$483	$7,698
120	CHEMISTRY DIV	$1,050	$2,143	$329	$705	$1,119	$5,346
136	INT PULSE NEUT SOURCE PROG	$59	$579	$15	$245	$102	$1,000
137	HIGH ENERGY PHYSICS DIV	$1,073	$2,363	$7,101	$851	$1,053	$12,441
139	DIV OF EDUCATIONAL PROGRAMS	$1,658	$45	$1,992	$155	$-2,067	$1,783
145	MATHEMATICS & COMPUTER SCI DI	$116	$100	$1,501	$6,572	$4,288	$12,577
146	CTD DIV - SCI APPL & RES	$104	$2,122	$3,926	$544	$-890	$5,806
273	PHYSICAL RESEARCH PROGRAM ADM	$59	$0	$0	$22	$36	$117
SUBTOTAL		$7,340	$16,153	$20,614	$13,956	$6,057	$64,120
	EXTERNAL						
751	FERMI NATIONAL LABORATORY	$828	$0	$0	$460	$391	$1,679
752	NAVY	$10,301	$0	$0	$1,173	$5,772	$17,246
753	MORGANTOWN ENERGY TECH CENTER	$16	$0	$0	$650	$0	$666
754	DEPARTMENT OF ENERGY AT ANL	$55	$0	$0	$90	$120	$265
755	ROCKWELL INTERNATIONAL	$3	$0	$0	$0	$5	$8
756	LOS ALAMOS	$80	$0	$0	$0	$0	$80
760	ABBOTT LABORATORIES	$13	$64	$3,451	$37	$2,200	$5,764
762	STATE UNIVERSITY OF NEW YORK	$159	$67	$880	$7	$105	$1,218
763	GENERAL ELECTRIC COMPANY	$0	$0	$0	$0	$0	$0
765	WESTINGHOUSE HANFORD COMPANY	$17	$1	$4	$1	$0	$23
766	BECHTEL NATIONAL, INC.	$0	$536	$1,056	$248	$0	$1,840
767	NUMERICAL ALGORITHMS GROUP, I	$0	$0	$22	$2	$0	$24
768	WESTINGHOUSE HANFORD COMPANY	$0	$0	$0	$5	$0	$5
771	PURDUE UNIVERSITY	$4	$0	$0	$0	$0	$4
774	BATTELLE	$0	$0	$0	$0	$0	$0
775	SMITHSONIAN	$0	$0	$0	$0	$3	$3
776	UNIVERSITY OF ILLINOIS AT CHICAGO	$0	$0	$0	$0	$0	$0
777	UNIVERSITY OF CHICAGO AT ANL	$178	$0	$0	$134	$45	$357
778	ARGONNE CREDIT UNION	$8	$0	$0	$0	$0	$8
779	UNIVERSITY OF ILLINOIS AT CHICAGO	$8	$0	$0	$0	$0	$8
780	NEW BRUNSWICK LABORATORY	$59	$0	$0	$6	$277	$342
781	STATE OF ILLINOIS DEPT. MENTAL HEALTH	$0	$0	$0	$0	$6	$7
782	PACKER ENGINEERING	$0	$2	$0	$1	$0	$3
SUBTOTAL		$11,730	$670	$5,413	$2,814	$8,925	$29,551

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
			OPERATIONS				
143	SUPP SERV DIV - ELEC DEPT	$73	$13	$0	$221	$33	$340
148	HUMAN RESOURCES-MEDICAL DEPT	$1,189	$0	$0	$159	$260	$1,608
150	SUPPORT SERV DIV - SPEC MATLS	$241	$0	$0	$66	$165	$472
161	TECH INFO SERVICES DEPT	$1,114	$88	$0	$168	$1,221	$2,592
201	OFFICE OF THE DIRECTOR	$287	$0	$0	$176	$302	$765
202	OFC OF CHIEF OPER OFCR	$26	$0	$0	$68	$43	$138
210	SUPP SERV DIV - CENT SHOPS	$144	$0	$0	$54	$51	$249
216	SUPPORT SERVICES DIVISION	$114	$0	$0	$49	$67	$231
222	PLANT FAC & SERV-LODGING FAC	$0	$0	$0	$0	$36	$36
232	SUPPORT SERV DIV - SECURITY	$346	$0	$0	$0	$83	$429
234	SUPP SERV DIV-HEALTH PHY	$259	$0	$0	$10	$162	$431
235	SUPP SERV DIV-ENV SAFE HEALTH	$833	$0	$0	$64	$228	$1,126
236	SUPPORT SERV DIV - FIRE DEPT	$0	$0	$0	$0	$36	$36
245	COMPUTING AND TELECOM DIV	$16,065	$0	$0	$3,291	$2,586	$21,943
247	COMP & TEL DIV - COM SERV	$2,028	$0	$0	$371	$1,255	$3,654
260	SUPP SERV DIV-GRAPHIC ARTS	$203	$551	$0	$957	$-405	$1,306
275	OFFICE OF PUBLIC AFFAIRS	$455	$0	$0	$224	$50	$730
276	OFC PUB AF - MOTN PIC UNIT	$30	$0	$0	$0	$3	$33
296	TELECOM COST/RECOVERY	$0	$0	$0	$285	$0	$285
315	SUPP SERV DIV-MATLS & SERV	$3,062	$0	$0	$717	$543	$4,322
316	PLANT FAC & SERV-VEH MAINT	$0	$0	$0	$0	$93	$93
317	PLANT FAC & SERV-DRIV&RIG SER	$12	$0	$0	$0	$36	$48
319	SUPP SERV DIV-TRAVEL OFC	$10	$0	$0	$182	$36	$228
322	SUPP SERV DIV-PROCUREMENT	$45	$0	$0	$9	$41	$96
333	QA, ENVIR & SAFETY OFC	$38	$0	$0	$11	$83	$131
400	OFC OF CHIEF FIN OFFICER	$59,050	$0	$0	$1,280	$11,165	$71,495
401	ACCOUNTING	$4	$0	$0	$15	$36	$55
402	OFC CHIEF FIN OFCR-DATA ENTRY	$12	$0	$0	$125	$0	$137
403	BUDGET OFFICE	$0	$0	$0	$0	$36	$36
410	HUMAN RESOURCES DEPARTMENT	$10,658	$0	$0	$1,009	$1,602	$13,269
412	AFFIRM ACTION PROGRAM	$191	$0	$0	$54	$155	$399
501	PLANT FAC & SERV-BLDG MAINT	$33	$0	$0	$35	$90	$158
502	PLANT FAC & SERV-INSTALLATION	$0	$0	$0	$0	$36	$36
503	PLANT FAC & SERV-GROUNDS	$0	$0	$0	$0	$36	$36
504	PLANT FAC & SERV-CUSTODIAL	$0	$0	$0	$0	$36	$36
505	PLANT FAC & SERV-WASTE MGMT O	$58	$0	$0	$52	$36	$145
506	PLANT FAC & SERV-PLANT MGR OF	$531	$0	$0	$209	$61	$801
510	PLANT FAC & SERV-UTILITY SYST	$0	$0	$0	$0	$70	$70
512	PLANT FAC & SERV-FAC PLNG/ENG	$440	$0	$0	$23	$107	$571
530	SITE MGRS OFC-ANL WEST	$30	$0	$0	$0	$37	$67
531	PERSONNEL-ANL WEST	$45	$0	$0	$37	$36	$118
532	SPECIAL MATLS-ANL WEST	$807	$0	$0	$113	$205	$1,125
533	ACCOUNTING-ANL WEST	$0	$0	$0	$0	$36	$36
534	PURCHASING-ANL WEST	$0	$0	$0	$0	$36	$36
535	SECURITY - ANL WEST	$20	$0	$0	$0	$36	$56
536	SAFETY STAFF-ANL WEST	$229	$0	$0	$9	$38	$276
537	INFORMATION SERVICE-ANL WEST	$0	$0	$0	$0	$36	$36
538	MATLS HANDLING-ANL WEST	$72	$0	$0	$6	$36	$114
550	COMPUTER APPL & SERV - ANL-W	$104	$0	$0	$28	$37	$170
551	RAD MONITORING-ANL WEST	$8	$0	$0	$0	$36	$44
554	MACHINE SHOP-ANL WEST	$26	$0	$0	$3	$36	$65
556	SITE ENGRG-ANL WEST	$119	$163	$0	$189	$50	$522
557	PLANT SERVICES-AW-SERVICE REQ	$88	$0	$0	$7	$36	$131
558	PLANT SERVICES-AW-FUNCTION	$4	$0	$0	$0	$0	$4
559	FOOD SERVICES - ANL WEST	$0	$0	$0	$0	$36	$36
561	OFC OF QUALITY ASSURANCE - AW	$4	$0	$0	$0	$37	$41
563	TALENT RESOURCE POOL-ANL WEST	$0	$0	$0	$0	$36	$36
SUBTOTAL		$99,109	$815	$0	$10,281	$21,274	$131,479
TOTAL		$204,691	$43,059	$83,145	$53,195	$67,245	$451,336

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	**Onsite (Illinois)**	**Onsite (Idaho)**	**Offsite (Area Code 708)**
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-3270	n.a.	972-3270
X.25 Terminal Multiplexor 300 to 19.2K Bits Per Second(Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-2525	n.a.	972-2525
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
atch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
entral DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-8700	n.a.	972-8700
rgonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-5588	n.a.	972-5588
rgonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920

ymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	**VM/SP**	**VMS**	**MFEnet Gateway**
onday to ursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
iday to nday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.

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Argonne National Laboratory
Computing and Telecommunications Division
January and February 1990

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering eight classes, four seminars, one demonstration, and one tutorial. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals:	To develop an overview of available computing facilities and services provided by CTD.
Length of Class:	One 3-hour session
Date and Time:	January 11, 1990 (Thursday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-216
Suggested Reading:	*Guide to Computing at ANL* (ANL/TM 336) *Recommended Documentation for Computer Users at ANL* (ANL/TM 379) *Guide to Telecommunications at ANL* (ANL/TM 422)
Instructor:	Fred Moszur

USING COMPUTER-BASED TRAINING

Goals:	To learn how to use computer-based training (CBT) courses in CMS.
Length of Demonstration:	One hour
Date and Time:	January 12, 1990 (Friday), 9:30 a.m. to 10:30 a.m.
Location:	Building 221, Room A-216
Instructor:	Joe Scheuerell

INTRODUCTION TO RACF FOR COST CENTER ADMINISTRATORS

Goals:	To learn about relevant computer protection policies and practices; to learn how RACF is used with ANL's CMS, Wylbur, TSO, MVS, and CICS systems; and to review the most common functions that RACF administrators perform.
Length of Class:	One 1 1/2-hour session
Date and Time:	January 12, 1990 (Friday), 2:00 p.m. to 3:30 p.m.
Location:	Building 221, Room A-216
Suggested Reading:	"Restructuring RACF for Cost Center Administrators" (November 1989 *Newsletter)* "Special RACF Commands for Cost Center RACF Administrators" (December 1989 *Newsletter)*
Instructor:	Fred Moszur

INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

Goals:	To learn to use Wylbur, an interactive system that provides a convenient interface for IBM MVS batch processing. To learn about the IBM MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for IBM batch execution.
Length of Class:	One 3-hour session
Date and Time:	January 16, 1990 (Tuesday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Suggested Reading:	*SLAC Wylbur Tutorial* *OBS Wylbur Reference Manual*
Instructor:	Mike Thommes

INTRODUCTION TO VAX/VMS

Goals:	To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).
Length of Class:	One 3-hour session
Date and Time:	January 17, 1990 (Wednesday), 9:00 a.m. to noon
Location:	Building 221, Room A-261
Instructor:	Dave Lifka

To register for a class, call extension 2-5405.

USING CMS ON IBM 3270-COMPATIBLE DISPLAY TERMINALS

Goals:	To learn to use CMS with an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or a line-oriented terminal capable of using the Hydra Protocol Converter to send and receive electronic mail; to write documents and memos; to organize information in files; to create program, text, and data files; to manipulate files with the editor; to invoke programs like statistical and graphic packages; to get printed reports; and to use CMS and Xedit computer-based training courses to further self-study.
Length of Class:	One 3-hour session
Date and Time:	January 17, 1990 (Wednesday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Suggested Reading:	*IBM VM System Product: CMS Primer* (SC24-5236) *CMS at ANL* (ANL/TM 423)
Instructor:	Pete Bertoncini

PROGRAMMING IN VAX/VMS

Goals:	To learn to use the VAX/VMS system. This class will include VAX Fortran programs, suggestions for writing basic DCL command procedures (including a LOGIN.COM), the usage of the VMS system debugger and the interprocess communications features, and an overview of the aspects of VMS internals affecting program performance.
Length of Class:	One 3-hour session
Date and Time:	January 22, 1990 (Monday), 9:00 a.m. to noon
Location:	Building 221, Room A-261
Instructor:	Dave Lifka

INTRODUCTION TO UNICOS

Goals:	To learn the basics of the Cray UNICOS file system, space management, and shell programming, as well as basic Unix commands. To learn how to use the Network Queueing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the IBM MVS and VAX/VMS front-end stations.
Length of Class:	Two 3-hour sessions
Dates and Time:	January 23, 1990 (Tuesday), 1:30 to 4:30 p.m. January 24, 1990 (Wednesday), 1:30 to 4:30 p.m.
Location:	Building 221, Room A-261
Suggested Reading:	*A Practical Guide to UNIX System V* (0-8053-8915-6) *UNICOS Primer* (SG-2010)
Instructor:	Tom Canfield

USING DIRECTORY MANAGER ON THE VAX 8700 COMPUTER

Goals: To learn to use the VMS Directory Manager utility. Directory Manager gives users a visual representation of their directory structure and allows users to work with their files and directory structure more easily.

Length of Class: One 1-hour session

Date and Time: January 24, 1990 (Wednesday), 9:30 a.m. to 10:30 a.m.

Location: Building 221, Room A-261

Instructor: Sharon I. Cauley

SAS: AN OVERVIEW OF STATISTICS, GRAPHICS, AND REPORTING CAPABILITIES

Goal: To learn about the various pieces of the SAS Software System available on the IBM MVS and CMS operating systems, on the VAX 8700 VMS operating system, and for IBM Personal Computers. To learn how you can use the available procedures to do your work (report writing to simple statistics to complex 3-D analytical, graphical output).

Length of Seminar: One hour

Date and Time: January 24, 1990 (Wednesday), 1:00 p.m. to 2:00 p.m.

Location: Building 221, Room A-216

Instructor: Mike Thommes

AVAILABLE ALTERNATIVES FOR VISUALIZING FLUID FLOW

Goal: To describe the techniques applied to a fluid dynamics computer code to generate images for visual interpretation.

Description: The Cray X-MP/14 was used to solve a finite difference representation of the two-dimensional, incompressible, viscous flow Navier-Stokes equations. The fluid flow was visualized by converting the numerical solution for field variables (such as pressure and velocity) to a color scale. CTD staff visualized the results by using a variety of equipment and software (including NCSAImage for the Apple Macintosh II computers and X Windows, PV-Wave, and the LBL-SCRY software for Sun workstations.

Length of Seminar: Two hours

Date and Time: January 26, 1990 (Friday), 2:00 p.m. to 4:00 p.m.

Location: Building 221, Room A-216

Speakers:
David P. Weber
Peter J. Bertoncini (Disspla and LBL SCRY)
Fred W. Dech (PV-Wave)
David W. Leibfritz (Disspla and X Windows)
David A. Lifka (NCSAImage)
John Rowlan (Cube View)

To register for a class, call extension 2-5405.

TELLAGRAF: AN OVERVIEW OF ITS GRAPHICS CAPABILITIES

Goal: To learn the capabilities of the CA-Tellagraf interactive software that is capable of creating line, plot, bar, table, and word charts easily while retaining full control over the plot characteristics and data values.

Length of Seminar: One hour

Date and Time: January 30, 1990 (Tuesday), 1:00 p.m. to 2:00 p.m.

Location: Building 221, Room A-216

Instructor: Mike Thommes

INTRODUCTION TO ANSYS

Goals: To provide potential users of ANSYS code with a basic working knowledge of the program. Participants will learn how (1) to access the ANSYS program, (2) to set up input for a problem, (3) to execute it interactively or in batch, and (4) to obtain results and to display them graphically.

Length of Tutorial: Two days

Dates and Time: February 14 and 15, 1990 (Wednesday and Thursday), 9:00 a.m. to noon and 1:00 p.m. to 5:00 p.m.

Location: Building 221, Room A-261

Required Text: *Introduction to ANSYS*, Revision 4.4

Suggested Text: *ANSYS Users Manual*, Version 4.4

Instructors: Ali Khounsary (APS) and Dave Lifka (CTD)

The charge for this tutorial is $150.
The deadline for registering is Friday, February 2, 1990.

USING DISSPLA GRAPHICS WITH X WINDOW WORKSTATIONS

Goal: To learn about the X Window System and how to tailor your Disspla programs to work with X Window to produce animation.

Length of Seminar: Two hours

Date and Time: February 20, 1990 (Tuesday), 1:00 p.m. to 3:00 p.m.

Location: Building 221, Room A-216

Requirements: Familiarity with Fortran and Disspla

Instructor: Dave Leibfritz

COMPUTER-BASED TRAINING COURSES

CTD currently offers 37 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH	Introduction and Advanced Concepts of Xedit

CRWTH CBT Courses

(Enter CBT "course name" at the CMS prompt.)

General Data Processing Courses	
DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center
Application System Courses	
ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS
CMS Courses	
CMS	Using CMS
XEDIT	Using XEDIT
SAS Courses	
SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph
Tellagraf Course	
TELLAGRA	Using TELLAGRAF
MVS Batch Courses	
JCL	Introduction to Basic JCL
Basic Project Management Course	
MANAGE	Project Management Concepts and Principles (see also ASPROJ)
TSO Courses	
TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)

Miscellaneous Courses
(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting

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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 21 NUMBER 2 FEBRUARY 1990

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UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

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Computing Center Classes

COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory
Building 221
Argonne, Illinois 60439-4822
FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	**Phone**	**Electronic Mail Address**
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Computer Network	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Data Communications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	A209	2-7329	B32848 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.1, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger and Janet Rutkowski with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

COMPUTING COMMENTS

MANAGEMENT COUNCIL APPROVES FY1990 CENTRAL COMPUTING FLOORS

The ANL Management Council has approved the use of "floors" during FY1990 to ensure full cost recovery for central computing. The FY1990 "floors" implementation is similar to the approach instituted in FY1988. "Floors" have been allocated to each Associate Laboratory Director (ALD) program area, as approved by the Management Council, in proportion to their share of Laboratory overhead (see Table 1).

Table 1: Central Computing Floors

Program Area	Amount
Advanced Photon Source	$213,000
Energy, Environmental, and Biological Research	$1,499,000
Engineering Research	$2,997,000
Physical Research	$1,518,000
Miscellaneous Programs	$25,000

	$6,252,000

Each ALD has allocated portions of these "floors" to each of their respective cost centers. The existing central computing billing and chargeback system will continue to function as it has in the past by recording and charging for the use of all central computing resources consistent with the approved Computing and Telecommunications (CTD) rate sheet. CTD will continue to provide users and cost center managers with monthly billings and tabulations of central computing resources used. All central computing resources identified on the CTD rate sheet can be used to meet the "floors," with the exception of CTD Effort and Private Branch Exchange (PBX) Services. The FY1990 *Computing and Telecommunications Division Rates* under revision and will be available shortly.

The ANL Budget and Accounting Offices will prepare a monthly report of year-to-date central computing billings compared to a year-to-date "floor" allocation for each cost center based on the "floor" allocations established by the ALDs.

The Budget and Accounting Offices will perform a formal review of "floors" in February, April, June, August, and September 1990. In the event the year-to-date actual is less than the year-to-date "floor" baseline, the difference will be assessed as an additional charge in the cost reports for the following month. The ALDs will determine the assessments by divisions. A discrete step in the year-end closing process will be to perform a final review of the "floors" to determine if additional assessments or rebates are necessary.

The Chief Financial Officer has indicated that if a total CTD central computing overrecovery exists, at either the August or year-end reconciliations, this overrecovery will be analyzed to determine if it was caused in any part by prior "floor" assessments. If so, the portion attributable to assessments will be rebated only to the ALDs who met the respective ALD "floor" in total through actual utilization/expenditures for central computing ***and*** paid any prior assessment(s). The respective ALD program administrators are distributing additional detail on individual cost center "floor" allocations and the assessment process.

JAPANESE DEMONSTRATE FIFTH-GENERATION COMPUTER AT ACRF

Japanese computer designers presented the latest experimental prototype of their fifth-generation computer at Argonne National Laboratory on October 11-13, 1989.

This is the first time that the machine has been demonstrated outside Japan. Japanese officials selected Argonne because of the leadership role of the Advanced Computing Research Facility (ACRF) in parallel computing research. The occasion for the demonstration was a joint Japanese-American Workshop on Logic Programming and Parallel Computing, sponsored jointly by the National Science Foundation (NSF) and the Japanese Institute for New Generation Computer Technology (ICOT).

Part of the workshop was devoted to examining and evaluating ICOT's new computer system. This system, called the Multi-PSI, combines capabilities for advanced symbolic computation and parallel processing. The model demonstrated at the ACRF featured 16 parallel processors; a larger version in Japan has 64 parallel processors.

The Multi-PSI represents the current high-water mark of the Fifth-Generation Computer Systems (FGCS) project. This project---Japan's largest combined effort in computer research and development---is a remarkable example of cooperation between industry and government. ICOT coordinates all research and development at its Tokyo research center. The center includes five laboratories focusing on the design and development of basic software, intelligent interfaces, knowledge bases, inference subsystems, and demonstration systems. Nine industrial organizations are represented: Hitachi, Fujitsu, Matsushita, Mitsubishi, NEC, Nippon, Oki, Sharp, and Toshiba. In addition, working groups of experts from universities and other commercial organizations provide advice on the project and help ICOT evaluate the effects of new technologies.

Japan's Ministry of International Trade and Industry has provided more than $350 million for the ten-year project. This money is used primarily to support ICOT's 90 researchers and 10 administrative staff. In addition, a portion of the funds is spent on international exchange activities. In the past seven years, for example, more than 50 researchers from Europe, Canada, and the United States have visited Japan to participate in research discussions. ICOT has also conducted several international conferences to report on the status of the FGCS project and to identify promising areas for fifth-generation computer applications.

The goal of the FGCS project is to have a 1000-processor system available for marketing by 1992. ICOT representatives appear confident of reaching this goal, and the Japanese government has expressed its own confidence by providing over 5.6 billion yen for 1990.

HIGH-PERFORMANCE COMPUTING SEMINARS

The series of high-performance computing seminars is continuing. Upcoming talks for the months of February and March are:

Youcef Saad, NASA Ames Research Center
"Numerical Solution of Parabolic Equations Using Polynomial Approximations to the Exponential"
Thursday, February 15, 1990

Randall Bramley, University of Illinois at Urbana
"Block Stiefel Acceleration for Linear Systems"
Thursday, March 15, 1990

Check the *Argonne Bulletin* and the special announcements for the times and locations of the seminars. To have your name added to the distribution list for abstracts, please contact Claudette DaCosse at extension 2-5415.

COMPUTING SEMINAR SCHEDULED FOR FEBRUARY 1990

During February 1990, CTD will offer one seminar. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Using Disspla Graphics with X Window Workstations (one 2-hour seminar) is for users who want to learn about the X Window System and how to tailor their Disspla programs to work with the X Window system to produce animation.

CRAY NEWS

UNICOS 5.1 SCHEDULED FOR PRODUCTION ON FEBRUARY 19, 1990

CTD is preparing to install the UNICOS 5.1 operating system on the Cray X-MP/14 after the regularly scheduled hardware maintenance period on Monday, February 19, 1990, at 9:00 a.m. If no major problems develop with UNICOS 5.1 on February 19, it will remain installed as the production operating system.

Because of internal design changes between the UNICOS 5.0 and UNICOS 5.1 implementations of the Network Queueing System (NQS) batch system it will not be possible to carry over any UNICOS 5.0 batch jobs into UNICOS 5.1. CTD will purge from the batch queue all jobs that have not run prior to the start of the 4:00 a.m. scheduled hardware maintenance period on Monday, February 19, 1990.

UNICOS 5.1 is primarily a maintenance release of the currently installed UNICOS 5.0 operating system. It includes several new features but does not introduce any user-level differences affecting the execution of existing jobs. Among the noteworthy UNICOS 5.1 highlights are enhancements to the CDBX debugger.

CDBX will include an optional X Window System interface that presents users with a debugging window, displays source code and the debugging session, and permits commands to be entered with a mouse or keyboard. New "attach" and "detach" commands allow a user to debug an already running process. CDBX can stop the process and allow the user to debug it. When debugging is complete, the process is detached from the debugger's control, and execution resumes.

MANAGEMENT INFORMATION SYSTEMS

USING THE NEW PROPERTY MANAGEMENT SYSTEM

CTD has recently upgraded the Property Management System in CMS to provide a menu-driven system with improved reporting capabilities and to add online help. You can access this system by executing the PROPERTY exec. The Property Management System contains current information about capital equipment (property valued over $1,000) and sensitive items (property valued between $150 and $1,000). You can request information for a particular cost center or for the entire Laboratory; then you can choose whether you want a complete list of all items or a list of items available for use.

The Property Management System's Main Menu offers four reporting menus. During a capital equipment inventory, you can obtain updated information by accessing the Inventory Shortages Menu. Likewise, during a sensitive items inventory, you can obtain updated information by accessing the Sensitive Items Menu. You can display property reports at your terminal, save them in your CMS reader, or print them on a variety of non-PostScript RADS or remote printers. A list of printers is available from the Destination of Output Menu by selecting Option 4 and then selecting H for the Help Screen.

Help is now available at every level of this new system. If you need assistance, contact your cost center's Division Property Representative or Steve Decman at extension 2-3607.

INTEGRATED FINANCIAL SYSTEM UPDATE

In December 1989, the Integrated Financial System (IFS) reports were routed to the users' preferred destinations. The Project Team will continue to update the IFS reporting database to reflect personnel and organizational changes as necessary. Anyone who detects errors in their selection criteria should contact Nick Moore at extension 2-8075.

In December 1989 and January 1990, the Project Team made changes to the way that data is reported on the "Detail Charges" and "Weekly Service Center" reports, specifically: (1) if a report does not contain prior year data fields and no cost has been incurred in an account this fiscal year, then IFS will not print the account for this fiscal year, (2) if a report contains prior year data fields and no cost has been incurred for a specific document in an account this fiscal year, then FIS will print the account and will show a summary of prior year cost with a prior year reference number for the specific document, and (3) if a report contains prior year data fields and cost has been incurred for a specific document in an account this fiscal year, then IFS will print the account and document and will show a summary of prior year cost and details of current year cost. As the users' requested, this will remove the unnecessary detail that was previously printed on reports.

The Project Team also made improvements to service center reporting and data processing: (1) weekly reports are delivered to the requestors on schedule, (2) automated time sheets reflect recent past activity, (3) the batch interface that accepts service request data is in place and its use is being extended to more service centers, and (4) the Project Team is automating the generation of subaccounts for valid service requests.

The Office of the Chief Financial Officer implemented a new procedure for checking commitments and accruals before reports are produced. Further improvements will be made over the next few months. The Project Team continued to train Production Control to perform the month-end close process. The Project Team has been working with the Budget Office to develop methods of distributing scientific paid absence time.

In January 1990, the Project Team continued to modify the IFS reports per the users' requests. Service Center reports will be reviewed with Cost Accounting and the users to determine the generic and specific changes necessary.

Progress on all phases of the IFS project will be reported at FACET meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

MVS NEWS

REDUCING TAPE ERRORS

During January 1990 two new messages began appearing in the job log of MVS batch jobs that process tapes. These two messages with the identifiers ANL2010 and ANL2011 are designed to help users and CTD personnel reduce the number of tape I/O errors. Both of these messages are produced at tape dismount time for each tape used by a job and provide an almost immediate report of the condition of the tape drive and the tape. Message ANL2011 signals to the user, and the computer operator, that the number of tape errors has become significant and that the tape drive and tape should be cleaned.

Message ANL2010 has the format:

```
ANL2010 DRIVE adr AND TAPE volume STATISTICS:
TR=trd, TW=twr, PR=prd, PW=pwr, NB=nbk,
EG=egaps, CL=clnac, SIO=sioct
```

where

"adr"	is the device address of the tape drive used to process the tape.
"volume"	is the volume serial number of the tape being processed.
"trd"	is the number of temporary read errors encountered.
"twr"	is the number of temporary write errors encountered.
"prd"	is the number of permanent read errors encountered.
"pwr"	is the number of permanent write errors encountered.
"nbk"	is the number of noise blocks read.
"egaps"	is the number of erase gaps written.
"clnac"	is the number of cleaner actions undertaken.
"sioct"	is the number of I/O operations performed.

Normally, this message is only informative and requires no user action. The values will generally be zero except for the number of start I/O operations. Occasional temporary errors are common. If users observe frequent or numerous temporary errors, permanent errors, or noise blocks, they are encouraged to have the tape cleaned or replaced.

An error is considered to be temporary if the operating system is able to try the I/O operation again and complete it successfully. MVS may try an I/O operation several times. If the I/O operation cannot be successfully completed after several attempts, it is considered a permanent error and MVS generally aborts the job.

If a permanent error is found or if numerous temporary errors are found, MVS will issue a second message, ANL2011.

Message ANL2011 has the format:

```
ANL2011 SIGNIFICANT TAPE ERRORS FOUND.
PLEASE CLEAN DRIVE adr AND TAPE volume
```

where

"adr"	is the device address of the tape drive used to process the tape.
"volume"	is the volume serial number of the tape being processed.

When this message appears, CTD will clean the tape drive and the tape. Note that tape cleaning is not destructive.

Because these two messages appear at the time the tape is used, they will permit CTD personnel to clean tape drives as often as required. Additionally, these messages indicate to users the condition of their tapes and allow users to have the tapes cleaned as required.

PROTECTING FORTRAN AND LIBRARIAN DATASETS WITH RACF

By default, Fortran programs open datasets for both input and output. This characteristic of Fortran will cause difficulty for Fortran programs that read datasets protected by RACF for read only access. RACF will not allow a user authorized for READ access to open an MVS dataset for output. You can remedy this situation by specifying in the JCL that the Fortran program open the dataset only for input. Add the operand LABEL=(,,,IN) to the appropriate DD statement.

Users may also experience difficulty attempting to read Librarian datasets protected for read only access by RACF. Even when a user reads a member of a Librarian master file, Librarian writes into an unused portion of the master file. Therefore, to enable other users to access your Librarian master files, you will need to permit UPDATE access for those users. Cost center RACF administrators with many Librarian files can create a generic profile for all Librarian datasets that follow consistent naming conventions. For example, enter:

```
PERMIT 'Cnnn.*.MASTER' GENERIC ID(Cnnn) ACCESS(UPDATE)
```

For information on protecting your Fortran and Librarian datasets with RACF, contact the User Services consultants at extension 2-5405.

TELECOMMUNICATIONS NEWS

ACI 100 PROVIDES HAYES-COMPATIBLE COMMUNICATIONS

CTD now provides ACI 100 (Asynchronous Communication Interface) units in addition to ADI 100 (Asynchronous Data Interface) units. Both units enable computer terminals and personal computers to connect to the Laboratory-wide Private Branch Exchange (PBX) to establish dial-up communications with computers onsite and offsite. The ACI 100 unit offers an advantage over Hayes-compatible modems, because ACI 100 provides communication speeds up to 19.2 kilobytes per second. The primary difference between ACI and ADI units are that the ACI 100 units accept standard Hayes commands (for example, ATDT). Users of personal computer communications programs that require the Hayes command interface can benefit from faster onsite transmission speeds by using the ACI 100 unit.

The operation of ACI 100 in Hayes command mode differs from the ADI 100 in that the ACI 100 uses the voice line to dial telephone numbers. You can conduct voice conversations and terminal sessions at the same time, except when the ACI 100 dials a telephone number. You must place your voice call on HOLD before issuing the ATDT dialing command. As soon as the dial command has been completed and the destination is ringing, you can resume your voice call.

The ACI 100 differs from Hayes modems in that it does not provide an AUTO ANSWER capability, and it uses some Hayes modem registers (e.g., S0) differently.

For more information on the use of the ACI 100, refer to *Asynchronous Data Communications User Guide with ADI/ACI 100 Operating Instructions* (ANL/TM 469), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). The monthly charge for an ACI 100 is $7.50 compared to $4.00 for an ADI 100.

NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 2,950 computers at over 1,050 sites. Since the last *Newsletter* article in December 1989, the following universities and organizations have joined BITnet:

Academic Medical Center--Amsterdam
California State University--Los Angeles
Eli Lilly and Company
Groupe ESSEC--Cergy Pontoise, France
Getulio Vargas Foundation--Rio De Janeiro
Federal University Do Parana--Curitiba, Brazil
Hong Kong University of Science and Technology
Higher School--Hannover
Lawrence Technological University--Southfield, Michigan
PNC-Tokai--Japan
Physical-Technical Federal Institute (PTB)--Berlin

Rider College
Rollins College
SRRC--Taiwan
Stockholm School of Economics
Suffolk University--Boston
Tennessee State University
University of the Americas--Mexico
University of Hong Kong
University of North Carolina--Asheville
Wittenberg College--Springfield, Ohio

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS, the VAX 8700, or MVS Wylbur):

```
HELP BITNET NODES
```

ARGONNE ACQUIRES LABORATORY-WIDE MULTINET LICENSE

The Laboratory has acquired a sitewide license for Multinet, a software product for VAX/VMS operating systems that provides Transmission Control Protocol/Internet Protocol (TCP/IP) networking capabilities. Multinet includes all of the tools you need for any configuration, from a standalone machine with a single Ethernet interface to a fully functional gateway with multiple interfaces and routing protocols. Multinet works with Digital's VAX and MicroVAX computers. Examples of Multinet capabilities include the Telnet virtual terminal utility; the File Transfer Protocol (FTP) utility; the Simple Mail Transfer Protocol (SMTP) utility, which interfaces to the VMS Mail utility allowing VMS users to send and receive mail transparently; tn3270 which provides IBM 3270 full screen emulation for VT100 terminals connected to the VAX; Network File System (NFS) server (not client) service; and the Domain Name Service utility, which is used to resolve host names into addresses.

The license currently covers the Illinois site only, and allows for unlimited usage. The cost of the license was shared by twelve divisions and sections: Computing and Telecommunications (CTD); Chemical Technology (CMT); Chemistry (CHM); the Advanced Photon Source (APS); Physics (PHY); High Energy Physics (HEP); Biological, Environmental, and Medical Research (BIM); Electronics (EL); the Intense Pulsed Neutron Source (PNS); the Electron Microscopy Center (EMC); Reactor Analysis and Safety (RAS); and Environmental Assessment and Information Services (EID). Other divisions will be able to use the site license with the only cost being a share in the then current maintenance costs.

Currently, CTD is testing Version 2.1 of Multinet. CTD will provide users with documentation and help on the installation and use of Mulitnet (see "Multinet Replaces Wollongong on the Central VAX Cluster" in this *Newsletter*). Future activities will integrate VAX systems more closely into the Argonne TCP/IP networking environment. For example, Network Job Entry (NJE) from VAXes will use TCP/IP rather than the slower speed binary synchronous protocols, Unix line printer daemon service will be available, and a VAX mailer that interfaces to Multinet, DECnet, and other networking protocols will also be available.

VAX/VMS NEWS

SUBMITTING JOBS FROM DISTRIBUTED VAXES TO CENTRAL COMPUTERS MADE EASIER

Users of distributed VAXes at ANL who submit batch jobs to the MVS system can request that CTD allow these jobs to be submitted via NJE without an MVS password. This local capability is similar to the DECnet proxy capability but applies to MVS batch jobs only. Use of the proxy method of job submission improves security, because your passwords are not exposed at your terminal and do not pass through the networks in clear text.

Your VAX username on your VAX system must match your RACF userid, and you must be enrolled for an MVS proxy with Account Services (Building 221, Room A-147, extension 2-5425). To simplify the process (if you have previously enrolled for a DECnet proxy for the central VAX cluster), all it takes is a telephone call to Account Services to have the MVS proxy installed. If you have not previously enrolled for a DECnet proxy, you will need to update your "Request for Authorization of Computer Account" form to request an MVS proxy.

With the proxy in place, you can submit batch jobs to MVS without a PASSWORD= parameter or by specifying PASSWORD=NONE on your JOB card. If you are using CTD-developed tools (such as HARDCOPY, which submits a batch job for you), delete your ACCOUNT.DAT file, submit a job, and, when prompted for a password, enter the word **NONE**. This procedure will retain **NONE** for future job submission, and you will not be prompted.

NEW VERSION OF DISSPLA AVAILABLE FOR TESTING

Computer Associates (CA) has distributed a new release level, GENLEVEL 8907, of Disspla 11.0. This release includes some fixes and provides dynamically loaded device drivers (DLDDs). Instead of your device driver or drivers being linked into your image, the device drivers that you select are loaded into memory at run time. This procedure reduces the size of the image, and allows you to run to any installed device without relinking by issuing a CALL PDEV statement.

There are six different dynamic nomination routines for using DLDD's, all of which are documented in the *CA-DISSPLA User's Manual*.

CTD has installed this release of Disspla on the VAX 8700 computer and it is now available for testing. A new version of Codebook is also available.

Codebook is an interactive productivity option of Disspla that generates prototype Disspla application programs in Fortran for scientific and engineering use. Codebook contains over 50 predefined programs or prototypes for three-dimensional graphs, surfaces, contours, mapping, Venn diagrams, strip charts, histograms, and other complex applications. For more information on Codebook, contact Mike Thommes at extension 2-5461 or via electronic mail at ANLVM::B14908.

To use the Disspla test version described in this article, enter the command:

```
$ SETUP DISSPLA /V=TEST
```

To use the current production version of Disspla later in the same session, you will need to use SETUP to make it available, enter the command:

```
$ SETUP DISSPLA
```

To learn more about SETUP, enter the command:

```
$ HELP SETUP
```

The list of DLDDs available with this test version of Disspla are in the Disspla HELP library. First enter the SETUP command for this version of Disspla, then enter:

```
$ HELP CA-DISSPLA
```

To display the list of compatible DLDDs, enter:

```
$ TYPE DLDD_MASTER_LIST
```

If you do not see the devices you need, contact the User Service consultants at extension 2-5405.

NEW VERSION OF TELLAGRAF 6.1 GOES INTO PRODUCTION ON THE VAX 8700 COMPUTER

On Monday, February 12 1990, Tellagraf 6.1 (Genlevel 8906) will be installed as the production version of Tellagraf on ANLCV1. Tellagraf 6.1 (Genlevel 8906) has been available for testing since December 1989. It includes many fixes and provides drivers with several new devices. For a list of the Tellagraf drivers, see "Updated Tellagraf 6.1 Has Access to New Drivers on the VAX 8700 Computer" in the December 1989 *Newsletter*.

To use Tellagraf 6.1 (Genlevel 8906) you must first issue the DCL command:

```
$ SETUP TELLAGRAF
```

Then enter the command:

```
$ TELLAGRAF
```

or

```
$ TAG
```

To use Tellagraf 6.1 (Genlevel 8906) prior to February 12, 1990, enter the command:

```
$ SETUP TELLAGRAF /V=TAG61T
```

If you have questions about Tellagraf Version 6.1 (Genlevel 8906), contact the User Services consultants at extension 2-5405.

MASS-11 VERSION 8.0 SCIENTIFIC WORD PROCESSING SYSTEM PLACED INTO PRODUCTION ON THE VAX 8700 COMPUTER

On Monday, February 12 1990, CTD will install Mass-11 Version 8.0, from Microsystems Engineering Corporation, as the Mass-11 production version on ANLCV1. Mass-11 is a powerful VAX-based menu-driven word processor that is well suited to scientific material requiring mathematical symbols and equations. Mass-11 offers many features:

- On-screen outlining
- Multiple column editing
- Previewing capabilities on terminals with SIXEL-MODE graphics (e.g., VT240)
- Publishing features (such as proportional printing with different fonts and point sizes, horizontal and vertical rulers, a scaling command, and the ability to bond paragraph headings to the following text)
- PostScript output
- Capability to include various graphics

A brief description of enhancements in Mass-11 Version 8.0 appears in "Mass-11 Version 8.0 Available for Testing on the VAX 8700 Computer" in the December 1989 *Newsletter*.

To use Mass-11, you must first execute the following SETUP command that creates the Mass-11 command and execution environment:

```
$ SETUP MASS11
```

Then execute the command:

```
$ MASS11
```

If you wish to access Mass-11 Version 8.0 prior to February 12, 1990, you must execute the command:

```
$ SETUP MASS11/V=8
```

Within Mass-11, you can access information on Mass-11 features and usage by entering the PF1 key on the terminal keypad followed by the character "?". You can also learn more about Mass-11 by attending a Mass-11 class. CTD will schedule a Mass-11 class when there is sufficient interest from the user community.

CTD will remove the previous version of Mass-11 in March 1990. If you have questions concerning Mass-11, contact Dave Lifka at extension 2-3251.

PLANS TO UPGRADE VAX 8700 COMPUTER CAPABILITIES

Currently, CTD has plans to upgrade the VAX 8700 computer capabilities by adding to the hardware. The additions include an increment of memory and 8mm cassette tape drives

CTD will increase the VAX 8700 computer memory to 96 megabytes by the purchase of a 64 megabyte increment. The new memory will reduce the overhead of virtual memory operations (paging) for jobs requiring large amounts of memory and consequently reduce run time and job charges, in addition to allowing us to run more large jobs concurrently. The memory will also be used for new initiatives (such as the Technical Information Services (TIS) library system, which is expected to increase the number of concurrent interactive sessions in the system).

A new dual-drive 8mm cassette tape system will provide a new alternative for high capacity storage. The drives will be used for routine backup operations and for media for user data. CTD will attach the 8mm tape drives to the VAX cluster storage controller; therefore, they will be available across the entire central VAX cluster.

If everything goes well, the memory and tape drives will be available to VAX 8700 users in March and April 1990 respectively.

MULTINET TCP/IP REPLACES WOLLONGONG ON THE CENTRAL VAX CLUSTER

In February 1990, CTD will replace the Wollongong TCP/IP product on the central VAX cluster with Multinet TCP/IP. CTD has coordinated the purchase of a site license for the new product that allows all VAXes at the Illinois site to use Multinet (see "Argonne Acquires Laboratory-wide Multinet License" in this *Newsletter*). CTD has tested the Multinet software, and we expect that users will see only small differences from the existing software. Conversion to Multinet is a prerequisite to the planned VMS upgrade to Release 5.2, which is currently planned for March 1990.

CTD will coordinate the conversion with users that use TCP/IP services, such as Telnet and FTP. CTD will complete preliminary testing with the Electronics' VAX before we convert the production facilities of the VAX 8700.

On February 12, 1990, CTD will install Multinet on the VAX 8700 computer for application testing in the production environment. If testing proves that Multinet is not compatible with the VAX 8700 computer applications, CTD will retain the Wollongong software until the incompatibilities are eliminated.

NETDATA AVAILABLE IN ARGONNE NJE NETWORK

Users of distributed VAX computers running the Argonne NJE emulator software (ANJE) can now use NETDATA to transfer general sequential files between Argonne and external computers. This capability has been available at Argonne by using IBM's BULK DATA format. However, NETDATA is more commonly used, because it is available in CMS, MVS with TSO/E, and in the Jnet NJE emulator for VAX/VMS. This new capability will enable VMS users to exchange general files easily with users at sites away from Argonne and with interfaces to the BITnet network.

Argonne VAX users have had the capability to decode received NETDATA files by using the ANJE **`GETFILE`** command. Now you can also transmit files in the NETDATA format by using the ANJE **`PUTFILE`** command with the "/NETDATA" option.

For example, you may send a general data file, INFILE.DAT, with records longer than 80 characters by entering:

```
$ PUTFILE INFILE.DAT /TEXT /NETDATA ANLVM B12345
```

You may also send VAX/VMS image files to other VAX computers, by entering:

```
$ PUTFILE PROG.EXE /BINARY /NETDATA ANLCV1 VUSER
```

or back-up utility "savesets" by entering:

```
$ PUTFILE XFAC.BCK EXTVAX JOEUSER /NETDATA
```

To decode NETDATA files on the receiving VAX computers, issue the **`GETFILE`** command. Use the **`HELP`** command to obtain more information on the **`GETFILE`** and **`PUTFILE`** commands.

USERS GROUP HIGHLIGHTS

MINUTES OF THE COMPUTER USERS GROUP

There was no Computer Users Group Meeting in January 1990.

MINUTES OF MACINTOSH USERS GROUP MEETING HELD JANUARY 10, 1990

Bob Kampwirth (Materials Sciences) opened the Janauary 1990 meeting at 11:00 a.m.

The December 1989 meeting (presented by Apple Corporation) on "Macintosh in the Research and Development Environment," appeared to be a success. All the seminars were standing room only, and the hardware vendors reported a good flow of traffic through their exhibits. There is a tentative plan to hold another "MacFest" next September.

Argonne will be a beta test site for Apple. Our first product will arrive in a few weeks and will probably be Mac X Windows. Apple Macintosh users who want to be beta testers can contact Bob Kampwirth at extension 2-5521. A Macintosh Users Core Group has been formed, representing various divisions around the site. Members of this group will attend Apple Briefing Seminars in which new products are announced under non-disclosure agreements. While these announcements cannot be discussed openly, the information should prove useful in planning future divisional acquisitions. In the near future, AppleLink, a channel to Apple Corporation's bulletin board, will be available from onsite in the near future. In general, we should see increased interaction between Apple and Argonne.

A Macintosh/LocalTalk Subgroup of the newly formed Network Managers Working Group will be formed to maximize availability and usefulness and minimize disruption of the Laboratory-wide Ethernet. CTD is looking into interfacing Macintoshes, NBIs, and 3Com for Email. Acquisition of a site-wide license for SMTP gateway (GatorMail) is in the works.

John Mattson (Division of Educational Programs) reported that there will be a Programmers SIG meeting in February 1990. The scope of the SIG will be expanded to include more languages.

Craig Haserot and Scott Haynes (Ashton-Tate) demonstrated FullWrite 1.1. It is a word processing program with a built-in quasi-MacDraw drawing capability, including a Bezier curve tool. It can display documents in four views. Footnotes are visible at the bottom of a page and multiple references to the same footnotes are automatically created. Page layout features include multiple columns, text wrapping around irregularly shaped graphics, kerning, and leading.

Graphics can be referenced in a look-up table so that, if the page the graphic is on changes, references to it will display the right page number. Graphics in PICT1 or PICT2 can be imported and modified. Table of Contents and Index are dynamic and change as the structure of the document changes. There is no facility for doing equations. The Find and Change commands can search for word, case, style, or size. Spell checker and thesaurus are included.

The cost of the program is $395. Theoretically it can run in 1 Megabyte RAM, but to operate properly it really needs 2 Megabytes. Bob Kampwirth has copies of both FullWrite and Full Impact, Ashton-Tate's spreadsheet program, for testing.

The February 1990 meeting will be a Spreadsheet Shootout between Ashton-Tate Full Impact (Haserot and Haynes, Ashton-Tate), Microsoft Excel (Ralph Leonard, Chemical Technology), and Informix Wingz (Alan Krauss, Chemistry).

The Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Material Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

Lee Wagar, Acting Macintosh Users Group Secretary.

WORKLOAD STATISTICS (NOVEMBER 30 THROUGH DECEMBER 19, 1989)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	*END OF MONTH*	*ACTIVE DURING MONTH*
CMS	1,235	1,238	454
Wylbur	1,669	1,658	355
MVS TSO	54	54	8
CICS	1,669	1,658	87
MVS Batch	2,109	2,117	589
VAX/VMS	465	470	233
Cray	413	420	117
All Systems	2,109	2,117	899

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				*SESSION*	*CPU*
	PRIME	*NIGHT*	*WEEKEND*	*TOTAL*	*TIME (HRS)*	*TIME (HRS)*
INTERACTIVE						
CMS	9,458	1,743	1,122	12,323	25,884.5	92.32
Wylbur	6,237	342	356	6,935	6,122.7	8.21
MVS TSO	92	2	0	94	93.1	0.21
CICS	24	36	21	81	0.0	3.22
VAX/VMS	6,481	522	522	7,525	11,078.2	102.52
Cray	106	49	92	247	804.9	8.15
IBM BATCH						
Class U	6,991	1,444	812	9,247	n.a.	27.69
Class W	11,678	1,193	916	13,787	n.a.	131.60
Class X	2	1,234	31	1,267	n.a.	95.13
Class Y	0	0	721	721	n.a.	47.69
Nonmain	13,387	1,484	1,136	16,007	n.a.	0.00
Total	32,058	5,355	3,616	41,029	n.a.	302.11
CRAY BATCH						
u	106	49	92	247	n.a.	8.15
w	1,677	224	226	2,127	n.a.	165.57
x	721	93	198	1,012	n.a.	56.56
y	2,555	969	907	4,431	n.a.	151.35
Total	5,059	1,335	1,423	7,817	n.a.	381.63
VMS BATCH						
W BATCH	836	664	473	1,973	n.a.	26.30
X BATCH	5	24	5	34	n.a.	30.43
Y BATCH	3	5	2	10	n.a.	0.68
Total	844	893	480	2,217	n.a.	57.41

INPUT/OUTPUT

Lines Printed	
Local	53,860,078
Remote	37,725,975
Fiche	28,051,812
Cards Punched-Local Only	24,753
Tape Mounts	5,320
Microfiche Developed	3,247
Microfiche Frames Developed	598,224

GRAPHICS	*# OF JOBS*	*# OF FRAMES*
CalComp Jobs	54	n.a.
Matrix 35mm Color	0	0
Matrix-8 x 10	4	4
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	54	564
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	0	0
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	24,362
New Tapes Saved	389
Tapes Released	410
Datasets Exported to Tape	1,192
Datasets Imported from Tape	501

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (NOVEMBER 30 THROUGH DECEMBER 31, 1989)

	Monthly Totals		*Scheduled*			*Unscheduled*	
		Hardware	*Software*	*Other*	*Hardware*	*Software*	*Other*
CMS							
All Shifts							
Interruptions	8.00	1.00	6.00				1.00
Hrs Unavailable	7.16	.71	4.26				2.18
MTF/Unscheduled	736.83						
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	4.00		3.00				1.00
Hrs Unavailable	3.95		1.76				2.18
MTF/Unscheduled	260.05						
WYLBUR							
All Shifts							
Interruptions	13.00	2.00	9.00		1.00		1.00
Hrs Unavailable	13.76	2.63	8.51		0.60		2.01
MTF/Unscheduled	365.11				730.23		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	5.00		3.00		1.00		1.00
Hrs Unavailable	4.56		1.95		0.60		2.01
MTF/Unscheduled	129.71				259.43		
MVS TSO							
All Shifts							
Interruptions	16.00	2.00	9.00		1.00		2.00
Hrs Unavailable	15.23	2.63	7.80		0.60		4.20
MTF/Unscheduled	242.92				728.76		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	6.00		3.00		1.00		2.00
Hrs Unavailable	6.75		1.95		0.60	4.20	
MTF/Unscheduled	85.75				257.01		
JES3							
All Shifts							
Interruptions	12.00	2.00	8.00		1.00		1.00
Hrs Unavailable	12.28	2.60	7.15		0.60		1.93
MTF/Unscheduled	365.85				731.71		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	4.00	3.00	2.00			1.00	1.00
Hrs Unavailable	4.01		1.48			0.60	1.93
MTF/Unscheduled	129.99					259.98	
CICS							
All Shifts							
Interruptions	2.00				1.00		1.00
Hrs Unavailable	2.98				0.66		2.31
MTF/Unscheduled	370.50				741.01		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00				1.00		1.00
Hrs Unavailable	2.98				0.66		2.31
MTF/Unscheduled	130.50				261.01		
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	6.00		3.00		1.00	1.00	1.00
Hrs Unavailable	6.70		5.65		0.33	0.38	0.33
MTF/Unscheduled	245.76				737.30	737.30	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00					1.00	1.00
Hrs Unavailable	0.71					0.38	0.33
MTF/Unscheduled	131.64				263.28		
CRAY							
All Shifts							
Interruptions	7.00	3.00			2.00	2.00	
Hrs Unavailable	17.55	11.00				5.41	1.13
MTF/Unscheduled	181.61				363.22	363.22	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00				1.00	1.00	
Hrs Unavailable	1.30				1.16	0.13	
MTF/Unscheduled	131.35				262.70	262.70	

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (NOVEMBER 30 THROUGH DECEMBER 20, 1989)

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHRL	CCTOTAL
	ADVANCED PHOTON SOURCE						
130	ADVANCED PHOTON SOURCE DIV	$537	$82	$0	$520	$87	$1,225
272	ADVANCED PHOTON SOURCE	$39	$0	$46	$39	$53	$178
341	APS ACCELERATOR PHYSICS	$166	$948	$0	$60	$39	$1,214
345	APS VACUUM	$0	$3,195	$0	$56	$2,346	$5,597
347	APS CONTROLS	$41	$2	$0	$0	$42	$85
348	APS MAGNETS	$50	$0	$0	$0	$1	$50
349	APS POWER SUPPLIES	$31	$0	$0	$1	$0	$32
350	APS DIVISION MANAGEMENT	$6	$0	$0	$0	$0	$6
351	APS INSERTION DEVICES	$3	$0	$0	$0	$0	$3
360	APS CONVENTIONAL FACILITIES	$44	$1	$0	$1	$9	$56
361	APS PROJECT DIRECTION	$9	$0	$0	$0	$0	$9
362	APS MANAGEMENT GENERAL	$11	$0	$0	$0	$0	$11
SUBTOTAL		$936	$4,228	$46	$678	$2,576	$8,465
	ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	BIO & MED RES DIV	$1,202	$1,449	$180	$1,003	$875	$4,709
125	TECHNOLOGY TRANSFER CENTER	$92	$0	$0	$2	$39	$132
149	ENVIROMMENTAL RESEARCH DIV	$1,724	$338	$1,370	$743	$480	$4,655
155	ENERGY SYSTEMS DIVISION	$1,926	$75	$425	$363	$351	$3,141
165	ENV ASSESS & INFO SCI DIV	$16,408	$6,513	$762	$2,294	$3,560	$29,537
174	ENER/ENV/BIO PROG DIR	$18	$0	$0	$0	$0	$18
197	SPECIAL PROJECTS OFFICE	$244	$2	$0	$29	$45	$320
246	ES-NAT'L ENERGY SOFTWARE CTR	$76	$0	$0	$659	$405	$1,140
274	ENER/ENV/BIO RES PROG ADM	$66	$0	$0	$0	$75	$141
SUBTOTAL		$21,756	$8,378	$2,738	$5,094	$5,830	$43,795
	ENGINEERING RESEARCH						
102	EBR-II PROJECT-ANL WEST	$1,976	$23	$1,320	$541	$47	$3,906
107	CHEMICAL TECHNOLOGY DIVISION	$820	$58	$0	$1,055	$282	$2,217
112	REACTOR ANAL & SAFETY	$13,416	$344	$1,438	$5,489	$2,649	$23,336
114	MATLS & COMP TECH DIV	$3,812	$1,535	$332	$2,448	$1,289	$9,416
115	ENGINEERING PHYSICS DIVISION	$29,434	$3,665	$43,493	$6,269	$8,092	$90,952
117	APPLIED PHYSICS-ANL WEST	$1,989	$3	$1,641	$213	$205	$4,051
118	REACTOR EXP & EXAM DIV	$4,022	$204	$123	$140	$258	$4,749
119	ANALYTICAL LABORATORY ANL-WES	$0	$0	$0	$0	$30	$30
171	ENGRG RES PROG DIR	$3	$0	$0	$0	$78	$81
211	ENGINEERING PHYSICS DIVISION	$31	$0	$0	$3	$2,823	$2,857
269	CHEM TECH DIV-ANALYTICAL CHEM	$46	$0	$0	$6	$157	$209
271	ENGRG RES PROG ADMIN	$160	$0	$0	$2	$165	$327
SUBTOTAL		$55,708	$5,833	$48,348	$16,167	$16,075	$142,131
	PHYSICAL RESEARCH						
105	MATERIALS SCIENCE DIVISION	$1,021	$3,266	$5,752	$3,283	$313	$13,635
109	PHYSICS DIV	$2,097	$1,118	$487	$1,565	$769	$6,037
120	CHEMISTRY DIV	$657	$1,149	$45	$510	$720	$3,082
136	INT PULSE NEUT SOURCE PROG	$48	$357	$36	$63	$71	$576
137	HIGH ENERGY PHYSICS DIV	$745	$2,639	$7,185	$834	$542	$11,944
139	DIV OF EDUCATIONAL PROGRAMS	$519	$0	$0	$84	$50	$653
145	MATHAMATICS & COMPUTER SCI DI	$91	$17	$547	$3,401	$3,141	$7,197
146	CTD DIV - SCI APPL & RES	$47	$500	$1,612	$214	$50	$2,422
273	PHYSICAL RESEARCH PROGRAM ADM	$44	$0	$0	$19	$30	$93
SUBTOTAL		$5,269	$9,047	$15,665	$9,972	$5,685	$45,638
	EXTERNAL						
751	FERMI NATIONAL LABORATORY	$579	$0	$0	$460	$274	$1,313
752	NAVY	$8,034	$0	$0	$1,171	$4,309	$13,514
753	MORGANTOWN ENERGY TECH CENTER	$11	$0	$0	$650	$0	$661
754	DEPARTMENT OF ENERGY AT ANL	$4	$0	$0	$0	$1	$5
755	ROCKWELL INTERNATIONAL	$2	$0	$0	$0	$4	$6
756	LOS ALAMOS	$21	$0	$0	$0	$0	$21
760	ABBOTT LABORATORIES	$9	$113	$6,777	$83	$0	$6,983
762	STATE UNIVERSITY OF NEW YORK	$80	$37	$4	$0	$74	$195
763	GENERAL ELECTRIC COMPANY	$0	$0	$0	$0	$0	$0
765	WESTINGHOUSE HANFORD COMPANY	$8	$0	$3	$0	$0	$11
766	BECHTEL NATIONAL, INC.	$0	$511	$1,281	$60	$0	$1,852
767	NUMERICAL ALGORITHMS GROUP, I	$0	$0	$10	$0	$0	$10
771	PURDUE UNIVERSITY	$3	$0	$0	$0	$0	$3
774	BATTELLE	$0	$0	$0	$0	$0	$0
775	SMITHSONIAN	$0	$0	$0	$0	$2	$2
776	UNIVERSITY OF ILLINOIS AT CHICAGO	$0	$0	$0	$0	$0	$0
777	UNIVERSITY OF CHICAGO AT ANL	$126	$0	$0	$130	$45	$301
778	ARGONNE CREDIT UNION	$6	$0	$0	$0	$0	$6
779	UNIVERSITY OF ILLINOIS AT CHICAGO	$6	$0	$0	$0	$0	$6
780	NEW BRUNSWICK LABORATORY	$13	$0	$0	$0	$0	$13
781	STATE OF ILLINOIS DEPT. MENTAL HEALTH	$0	$0	$0	$0	$4	$5
782	PACKER ENGINEERING	$0	$45	$0	$31	$106	$182
SUBTOTAL		$8,903	$706	$8,074	$2,586	$4,819	$25,088

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
			OPERATIONS				
143	SUPP SERV DIV - ELEC DEPT	$52	$9	$0	$212	$73	$345
148	HUMAN RESOURCES-MEDICAL DEPT	$745	$0	$0	$124	$154	$1,022
150	SUPPORT SERV DIV - SPEC MATLS	$188	$0	$0	$46	$84	$318
161	TECH INFO SERVICES DEPT	$1,190	$44	$0	$155	$1,106	$2,494
201	OFFICE OF THE DIRECTOR	$158	$0	$0	$165	$232	$555
202	OFC OF CHIEF OPER OFCR	$20	$0	$0	$65	$30	$114
210	SUPP SERV DIV - CENT SHOPS	$109	$0	$0	$55	$67	$231
216	SUPPORT SERVICES DIVISION	$108	$0	$0	$48	$30	$186
222	PLANT FAC & SERV-LODGING FAC	$0	$0	$0	$0	$30	$30
232	SUPPORT SERV DIV - SECURITY	$227	$0	$0	$0	$98	$325
234	SUPP SERV DIV-HEALTH PHY	$201	$0	$0	$9	$85	$296
235	SUPP SERV DIV-ENV SAFE HEALTH	$558	$0	$0	$54	$182	$795
236	SUPPORT SERV DIV - FIRE DEPT	$0	$0	$0	$0	$30	$30
245	COMPUTING AND TELECOM DIV	$10,996	$0	$0	$3,027	$1,743	$15,766
247	COMP & TEL DIV - COM SERV	$2,517	$0	$0	$360	$1,829	$4,706
260	SUPP SERV DIV-GRAPHIC ARTS	$152	$143	$0	$14	$26	$335
275	OFFICE OF PUBLIC AFFAIRS	$428	$0	$0	$127	$62	$617
276	OFC PUB AF - MOTN PIC UNIT	$27	$0	$0	$2	$2	$31
296	TELECOM COST/RECOVERY	$0	$0	$0	$285	$0	$285
315	SUPP SERV DIV-MATLS & SERV	$1,844	$0	$0	$553	$234	$2,631
316	PLANT FAC & SERV-VEH MAINT	$0	$0	$0	$0	$70	$70
317	PLANT FAC & SERV-DRIV&RIG SER	$9	$0	$0	$0	$30	$39
319	SUPP SERV DIV-TRAVEL OFC	$7	$0	$0	$175	$30	$213
322	SUPP SERV DIV-PROCUREMENT	$29	$0	$0	$1	$31	$61
333	QA, ENVIR & SAFETY OFC	$72	$0	$0	$16	$67	$156
400	OFC OF CHIEF FIN OFFICER	$41,304	$0	$0	$1,224	$9,066	$51,594
401	ACCOUNTING	$0	$0	$0	$21	$30	$51
402	OFC CHIEF FIN OFCR-DATA ENTRY	$9	$0	$0	$125	$0	$134
403	BUDGET OFFICE	$0	$0	$0	$0	$30	$30
410	HUMAN RESOURCES DEPARTMENT	$7,659	$0	$0	$740	$1,128	$9,527
412	AFFIRM ACTION PROGRAM	$83	$0	$0	$48	$120	$251
501	PLANT FAC & SERV-BLDG MAINT	$27	$0	$0	$35	$132	$194
502	PLANT FAC & SERV-INSTALLATION	$0	$0	$0	$0	$30	$30
503	PLANT FAC & SERV-GROUNDS	$0	$0	$0	$0	$30	$30
504	PLANT FAC & SERV-CUSTODIAL	$0	$0	$0	$0	$30	$30
505	PLANT FAC & SERV-WASTE MGMT O	$39	$0	$0	$41	$30	$110
506	PLANT FAC & SERV-PLANT MGR OF	$186	$0	$0	$60	$31	$276
510	PLANT FAC & SERV-UTILITY SYST	$0	$0	$0	$0	$30	$30
512	PLANT FAC & SERV-FAC PLNG/ENG	$323	$0	$0	$20	$88	$432
530	SITE MGRS OFC-ANL WEST	$26	$0	$0	$1	$31	$57
531	PERSONNEL-ANL WEST	$32	$0	$0	$11	$30	$73
532	SPECIAL MATLS-ANL WEST	$604	$0	$0	$119	$130	$852
533	ACCOUNTING-ANL WEST	$0	$0	$0	$0	$30	$30
534	PURCHASING-ANL WEST	$0	$0	$0	$0	$30	$30
535	SECURITY - ANL WEST	$14	$0	$0	$0	$30	$44
536	SAFETY STAFF-ANL WEST	$127	$0	$0	$2	$31	$161
537	INFORMATION SERVICE-ANL WEST	$0	$0	$0	$0	$30	$30
538	MATLS HANDLING-ANL WEST	$55	$0	$0	$6	$30	$91
550	COMPUTER APPL & SERV - ANL-W	$87	$0	$0	$20	$30	$137
551	RAD MONITORING-ANL WEST	$6	$0	$0	$0	$30	$36
554	MACHINE SHOP-ANL WEST	$16	$0	$0	$1	$30	$47
556	SITE ENGRG-ANL WEST	$78	$90	$0	$18	$30	$215
557	PLANT SERVICES-AW-SERVICE REQ	$50	$0	$0	$4	$50	$105
558	PLANT SERVICES-AW-FUNCTION	$3	$0	$0	$0	$0	$3
559	FOOD SERVICES - ANL WEST	$0	$0	$0	$0	$30	$30
561	OFC OF QUALITY ASSURANCE - AW	$3	$0	$0	$0	$31	$34
563	TALENT RESOURCE POOL-ANL WEST	$0	$0	$0	$0	$30	$30
SUBTOTAL		$70,365	$286	$0	$7,989	$17,733	$96,372
TOTAL		$162,937	$28,477	$74,872	$42,485	$52,719	$361,491

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	**Onsite (Illinois)**	**Onsite (Idaho)**	**Offsite (Area Code 708)**
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-3270	n.a.	972-3270
X.25 Terminal Multiplexor 300 to 19.2K Bits Per Second(Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-2525	n.a.	972-2525
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-8700	n.a.	972-8700
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-5588	n.a.	972-5588
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
Tymnet Commercial Packet-Switching Network			
Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.			

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	**VM/SP**	**VMS**	**MFEnet Gateway**
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.

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Argonne National Laboratory
Computing and Telecommunications Division
February 1990

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering one tutorial and one seminar. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

INTRODUCTION TO ANSYS

Goals: To provide potential users of ANSYS code with a basic working knowledge of the program. Participants will learn how (1) to access the ANSYS program, (2) to set up input for a problem, (3) to execute it interactively or in batch, and (4) to obtain results and to display them graphically.

Length of Tutorial: Two days

Dates and Time: February 14 and 15, 1990 (Wednesday and Thursday), 9:00 a.m. to noon and 1:00 p.m. to 5:00 p.m.

Location: Building 221, Room A-261

Required Text: *Introduction to ANSYS*, Revision 4.4

Suggested Text: *ANSYS Users Manual*, Version 4.4

Instructors: Ali Khounsary (APS) and Dave Lifka (CTD)

The charge for this tutorial is $150.
The deadline for registering is Friday, February 2, 1990.

USING DISSPLA GRAPHICS WITH X WINDOW WORKSTATIONS

Goal: To learn about the X Window System and how to tailor your Disspla programs to work with X Window to produce animation.

Length of Seminar: Two hours

Date and Time: February 20, 1990 (Tuesday), 1:00 p.m. to 3:00 p.m.

Location: Building 221, Room A-216

Requirements: Familiarity with Fortran and Disspla

Instructor: Dave Leibfritz

COMPUTER-BASED TRAINING COURSES

CTD currently offers 37 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH	Introduction and Advanced Concepts of Xedit

CRWTH CBT Courses

(Enter CBT "course name" at the CMS prompt.)

General Data Processing Courses

DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center

Application System Courses

ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS

CMS Courses

CMS	Using CMS
XEDIT	Using XEDIT

SAS Courses

SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph

Tellagraf Course

TELLAGRA	Using TELLAGRAF

MVS Batch Courses

JCL	Introduction to Basic JCL

Basic Project Management Course

MANAGE	Project Management Concepts and Principles (see also ASPROJ)

TSO Courses

TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)

Miscellaneous Courses

(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting

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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

OLUME 21 NUMBER 3 MARCH 1990

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UNIVERSITY OF ILLINOIS

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COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory
Building 221
Argonne, Illinois 60439-4822
FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Computer Network	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Data Communications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	A209	2-7329	B32848 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.1, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.1, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

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COMPUTING COMMENTS

FY1990 COMPUTING RATE STRUCTURE REVISED

The Chief Financial Officer has reviewed and approved the FY1990 rate structure for central computing. The revised rate sheet is attached to this *Newsletter*. Vertical revision bars in the left margin of the rate sheet provide users with an indication of any differences from the FY1989 rates. The revised rates took effect on Friday, February 23, 1990.

The most significant change in the rates is the Cray Central Processing Unit (CPU) rates. CTD has increased the Cray CPU rate 10 percent. Additionally, CTD has increased the output printing (both local and remote) rates.

Another significant change CTD is instituting this year is the "Basic Cost Center Access" charge of $100 per month per cost center. CTD has essentially "bundled" the previous monthly user and cost center access charges for the IBM Professional Office System (PROFS), the Human Resource System (HRS) access charges, the ANSYS monthly user charges, the access to ANLPHONE, and the access to other Laboratory-wide databases. Because of this change, most cost centers with two or more PROFS users and an HRS access account will experience a $20 per month decrease in their charges for these services. Cost centers with three or more users of PROFS for electronic calendars and mail will benefit from even higher reductions because of this "bundling." There is essentially no difference in overall recovery between the "bundled" and "unbundled" rates.

CTD has provided the overall cost to the recovery plan and the models of recovery by major service to the Computing Policy Committee and the Chief Financial Officer to document the FY1990 Central Computing Full Cost Rate Structure.

ANL COMPUTER NETWORKS AND DATA SECURITY

Most computers are now connected to one or more computer networks. These connections permit computer users to transfer information to each other, even though they may have accounts on separate computers. Each computer has its own operating system security features to protect the operating system itself and to authorize logon access and sharing of data (although these security features may be minimal for personal computers). Multiuser computer operating systems normally require the use of authorized user identification and password combinations before allowing a user to access the computer.

Operating system protection does not generally extend beyond the computers themselves; where networks are used to access the computers, the networks may not be secure. For most local area networks, it is possible for anyone having physical access to a computer on the network and network monitoring software to monitor data transmissions. By using a personal computer with such software, an unscrupulous person can identify and trap user identification and password combinations or other data transmitted through the network.

ANL networks include local area networks (or groups of local area networks) within a building. These local area networks are then connected by a gateway (an LDI-410), which is part of the Private Branch Exchange (PBX), to the Laboratory-wide Ethernet (LANmark). Messages generated by one computer in a local area network with destinations in that same local area network do not enter the Laboratory-wide Ethernet; they remain local. Messages destined for the central computers in Building 221 are routed through the PBX to the computer room local area network.

For planning purposes, you can assume that security of data on the PBX Ethernet and on the Building 221 computer room Ethernet is adequate for sensitive (but not classified) data (that is, transmissions are confined to the computer room and a single local area network connected to the PBX).

If you plan to use a local area network to transmit sensitive data, you must include in your risk assessment and protection plan a discussion of the risks of using a local area network, any precautions you take to mitigate those risks, and a statement explaining why you believe any remaining risks are acceptable.

MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASSES

The Mathematics and Computer Science Division is offering two three-day classes (9:00 a.m. to 4:30 p.m., on Wednesday, Thursday, and Friday, April 4-6, 1990, and June 13-15, 1990) on how to write programs for the parallel computer systems in the Argonne Advanced Computing Research Facility (ACRF).

The class will cover the following topics: (1) parallelizing compilers, (2) using packages for portable parallel programming (including the Monitor package and the Schedule package), (3) programming the TC2000 (Butterfly II), (4) programming the Distributed Array Processor (DAP), and (5) programming the Connection Machine-2. On the third day, a portion of class time will be spent on each attendee's project. The class will include hands-on experience in writing and running programs on each machine. Participants will become familiar with the ACRF environment. Some knowledge of Unix and Fortran is necessary. To become familiar with Unix, refer to *A Practical Guide to UNIX System V* (0-8053-8915-6), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address huml@mcs.anl.gov. There is a $25.00 charge per person for universities, federal laboratories, and other government organizations and a $100 charge for commercial organizations.

HIGH-PERFORMANCE COMPUTING SEMINAR

The series of high-performance computing seminars is continuing. An upcoming talk for March is:

> Randall Bramley, University of Illinois at Urbana
> **Block Stiefel Acceleration for Linear Systems**
> Thursday, March 15, 1990

Check the *Argonne Bulletin* and the special announcements for the times and locations of the seminars. To have your name added to the distribution list for abstracts, please contact Claudette DaCosse at extension 2-5415.

MANAGEMENT INFORMATION SYSTEMS

INTEGRATED FINANCIAL SYSTEM UPDATE

In February 1990, the Integrated Financial System (IFS) Project Team conducted a random telephone survey of a subset of the IFS report users about their IFS reporting needs. The users were asked if they would be interested in attending a class explaining the contents of the current IFS reports. Most of the users contacted felt that they did not need a class of this type. The users did express an interest in modifying and specifying their own report selection criteria; therefore, the Project Team is currently developing this capability and will test it with a select group of users in March 1990. Some users also expressed a desire to create their own ad hoc IFS reports; the Project Team has begun to design this capability.

The Project Team has completed the automation of sub-account setup for service requests. This automation will reduce the number of transactions rejected because of invalid accounts. The Project Team has added an additional step to the IFS month-end closing process to review and adjust commitments and encumbrances. This additional step will ensure that the reports will contain the most accurate commitment and encumbrance data.

Progress on all phases of the IFS project will be reported at the Financial Applications to Effect Telesis (FACET) meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m. Nick Moore will discuss the direction that the work on the IFS Information Expert user environment will take at the FACET meeting that will be held on March 13, 1990. Users of IFS reports should attend this meeting.

USING CICS FROM VAXES, PERSONAL COMPUTERS, AND WORKSTATIONS

Many users who need to access non-sensitive Laboratory administrative systems in the IBM Customer Information Control System (CICS) may be able to do so from the computers they already use. Previously, only IBM 3270 terminals or terminals connected to protocol converters could access the CICS system or any other full screen IBM system. Today, a software program called tn3270 works with the Laboratory-wide Ethernet to provide full screen access to any of ANL's IBM systems (for example, CICS, CMS, Wylbur, and TSO). Tn3270 is available for a wide variety of computers. Recently, CTD installed tn3270 on the central VAX 8700 computer.

In September 1989, CTD began distributing tn3270 for IBM Personal Computer users with Ethernet connections (see "NCSA Telnet for IBM Personal Computers with Full Screen Capabilities Now Available" in the September 1989 *Newsletter*). Earlier this year, CTD also described tn3270 for Sun workstations (see "Tn3270 for the Sun Workstation" in the August 1989 *Newsletter*) and Apple Macintosh computers (see "NCSA Telnet and tn3270 Available for Apple Macintosh Personal Computers" in the December 1988 *Newsletter*). CTD encourages users who need to use non-sensitive ANL administrative systems in CICS to consider using tn3270.

However, note that data transmitted over ANL local area networks is not encrypted. Data privacy relies on each workstation connected to the local area network discarding all but those packets addressed to it. It is not very difficult to retrieve any packet transmitted over the local area network. Users and managers of sensitive applications must include these risks in their standard risk assessment process. (See "ANL Computer Networks and Data Security" in this *Newsletter*.)

PERSONAL COMPUTING AND WORKSTATIONS

OPPORTUNITY TO ACQUIRE SAS/GRAPH AND SAS/ETS SOFTWARE FOR IBM PERSONAL COMPUTERS

The Laboratory has recently signed a single copy purchase agreement with SAS Institute for its SAS/Graph and SAS/ETS (Econometric Time Series) personal computer products. This contract is expandable to include multiple copies of the products at substantial savings to you (for example, one copy is $475, two copies are $387.50 each, and twenty copies are $132.50 each). The more copies we order, the greater the discount.

The SAS/ETS software is a collection of SAS procedures for analyzing time sequential data (especially economic and business data). SAS/ETS procedures are designed for financial analysts dealing with business data in a time series, forecasters constructing forecasts with time series techniques, and econometricians building economic models. Additional information is in the *SAS/ETS User's Guide, Version 6, First Edition* (ISBN-1-55544-325-7).

The SAS/Graph software is a computer graphics system for displaying data as color plots, charts, and maps on personal computer graphic displays and hardcopy devices. The SAS/Graph procedures require the base SAS software. Additional information is in the *SAS/Graph User's Guide, Release 6.03 Edition* (ISBN 1-55544-087-8).

System requirements are the same for these products as they are for the base product: MS-DOS 2.0 or later and 512K of memory. SAS/Graph for the IBM Personal Computer works with hundreds of graphics drivers, including the Computer Graphics Metafile (CGM); PostScript; and the Color Graphics Adapter (CGA), the Enhanced Graphics Adapter (EGA), Hercules, and the Video Graphics Adapter (VGA) graphics boards.

If you are interested in either SAS/Graph or SAS/ETS for your personal computer, contact Mike Thommes at extension 2-5461.

VAX/VMS NEWS

PLANS TO UPGRADE THE VAX CLUSTER TO VMS 5.2

On Monday, March 19, 1990, CTD will upgrade the central VAX cluster to Version 5.2 of the VMS operating system. VMS 5.2 includes improvements to the programs for backing up the disk files to magnetic tape (a process that requires several hours per week). We expect improvements to allow the weekly full back-ups to be done in 30 percent less time. Other changes and improvements are new command qualifiers, new lexical functions, and new security auditing functions. Also, there are many changes to benefit system management. The enhanced symbolic debugger permits debugging multiprocess programs. To view online documentation of the new features in VMS 5.2, enter:

```
HELP V52
```

CTD has received VMS 5.3. Currently, we are evaluating the possibility of upgrading directly to VMS 5.3, which depends on software upgrades that we have not yet received. To view online documentation of the new features in VMS 5.3, enter:

```
HELP V53
```

BITS & BYTES

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new CTD documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing and Telecommunications Documents

Parallelizing the SDI ACCESS Algorithm for the Connection Machine-2 (ANL-89/41) describes taking a prototype weapon-target accessibility algorithm (ACCESS) previously studied on a variety of shared-memory parallel computers and analyzing the implementation of that algorithm on a Connection Machine-2. This report provides benchmarks for the algorithm on CM-2 configurations with 16K to 64K physical processors, along with comparative timings from other parallel and sequential implementations.

Cray Research, Inc. Documents

The *Cray C Reference Manual* (SR-2024 D) briefly summarizes the characteristics of the C language and describes the differences between the Cray C implementation on the various Cray computer systems. Readers should have a working knowledge of the C programming language and UNICOS. This manual supersedes the November 1988 edition of the *Cray C Reference Manual.*

The *Cray Standard C Programmer's Reference Manual* (SR-2074) describes the Cray Standard C features and summarizes Cray-specific details of the ANSI standard C language. Readers should have a working knowledge of the C programming language and UNICOS.

The *UNICOS System Calls Reference Manual* (SR-2012 5.0) describes the system calls available on the Cray-2, Cray Y-MP, Cray X-MP EA, Cray X-MP, and Cray-1 computer systems and supplements the information contained in other manuals in the UNICOS documentation set. This revision documents changes for the UNICOS 5.0 release. Readers should have a working knowledge of either the UNICOS or Unix operating system. This manual supersedes the July 1988 edition of the *UNICOS System Calls Reference Manual.*

IBM Documents

The *IBM BASIC Language Reference* (GC26-4026-2) provides reference material on the IBM Basic language. It presents definitions and examples of IBM Basic statements and commands. Readers should have some knowledge of the Basic language. This manual supersedes the 1983 edition of the *IBM BASIC Language Reference.*

The *IBM BASIC Programming Guide* (SC 26-4027-02) describes how to use IBM Basic to design, develop, test, and run programs in the Basic language. It also provides guidance for using IBM Basic to develop Basic programs. Readers should have some knowledge of the Basic language. This manual supersedes the 1983 edition of the *IBM BASIC Programming Guide.*

The *Resource Access Control Facility (RACF) Command Language Reference* (SC28-0733-9) describes the syntax and the functions of the commands for Version 1, Release 8.1 and Version 1, Release 8.2 of the RACF program number 5740-XXH. This revision supersedes the 1987 edition of the *Resource Access Control Facility (RACF) Command Language Reference.*

The *Resource Access Control Facility (RACF) Messages and Codes* (SC38-1014-10) lists the messages, abend codes, and RACF manager return codes produced by Version 1, Release 8.1 or 8.2 of the IBM program product RACF, program number 5740-XXH. This revision supersedes the 1981 edition of the *Resource Access Control Facility (RACF) Messages and Codes.*

Using the Professional Office System (SH20-6797-01) Version 2 is a reference guide for anyone who uses the Professional Office System (PROFS). Readers should have a general knowledge of PROFS. This manual supersedes the 1985 edition of *Using the Professional Office System.*

The *Virtual Machine/System Product CP General User Command Reference* (SC19-6211-05) Release 6 describes the VM/SP Control Program (CP) commands that are available to IBM-defined privilege class G and class ANY. This manual supersedes the 1986 edition of the *Virtual Machine/System Product CP General User Command Reference.*

The *Virtual Machine/System Product System Product Interpreter User's Guide* (SC24-5238-04) Release 6 describes the Restructured Extended Executor (REXX) language and how the System Product Interpreter processes or interprets REXX. Readers should be familiar with CMS, but they do not need to have any programming experience. This manual supersedes the 1986 edition of the *Virtual Machine/System Product System Product Interpreter User's Guide.*

The *VS FORTRAN Language and Library Reference* (SC29-4119-1) outlines the programming rules for the VS Fortran source language. Readers should have a general knowledge of Fortran. This manual supersedes the 1984 edition of the *VS FORTRAN Language and Library Reference.*

The *VS FORTRAN Version 2 Language and Library Reference* (SC26-4221-04) Release 4 contains reference information about VS Fortran Version 2. Readers should have a basic understanding of Fortran. This manual supersedes the 1986 edition of the *VS FORTRAN Version 2 Language and Library Reference.*

The *VS FORTRAN Version 2 Programming Guide* (SC26-4222-04) Release 4 explains how to compile and run programs using VS Fortran Version 2. It also contains information on advanced coding topics. Readers should have a basic understanding of Fortran. This manual supersedes the 1986 edition of the *VS FORTRAN Version 2 Programming Guide.*

Other Vendor Documents

The *VMS Debugger Manual* (AA-LA59B-TE) explains the features of the VMS Debugger for programmers in high-level and assembly languages. Readers should be programmers at all levels of experience.

The *VMS DECwindows User's Guide* (AA-MG18A-TE) is designed to help users explore and use VMS DECwindows. Readers should have a general knowledge of VMS DECwindows.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD FEBRUARY 6, 1990

Dotti Bingaman (Environmental Assessment and Information Sciences) opened the meeting at 3:06 p.m.

CTD Rates for FY1990. Mike Boxberger (Computing and Telecommunications) discussed the cost recovery method used by CTD and how it would affect the rates seen by users during FY1990. CTD wants to recover its costs by major service category and by charging for the materials that are actually used.

The major service categories are the Cray, IBM, VAX, Networking, and Peripherals. The inclusion of networking as a separate category is a change from last year. There were several possibilities on how to handle the rate structure to include networking, but the decision was to leave the rate structures for this year as they were last year with some level adjustments. Based on a steady state full recovery model, CTD has proposed that the rates for the following items increase a small amount: Cray CPU usage (up 10 percent), spooled lines printed locally (up $0.10 per 1,000), spooled lines printed remotely (up $0.05 per 1,000), the IBM 3800 laser printer (up $0.10 per 1,000), and facilities management charges. CTD has also proposed to reduce charges for Cray disk storage.

CTD will publish all the rates soon; they will be in effect when approved and published. (See "FY1990 Computing Rate Structure Revised" in this *Newsletter.)*

CTD Floors. Mike then continued with a discussion of the Floors charges and how they would be assessed as defined in a memo from the Chief Financial Officer to the Associate Laboratory Directors. Based on anticipated usage and charges, the Floors should recover $6.2 million. These Floors are assessed in proportion to Associate Laboratory Director (ALD) indirect shares, with some slight modifications. There will be monthly reports to the ALDs on usage charges and Floors levels by cost center. In February, April, June, August, and September 1990, there will be assessments to cover the difference between usage and the Floor. If CTD has an over-recovery and a cost center has charges over its Floor level, there is the possibility of a rebate.

Results of UNICOS Upgrade Test. Fred Moszur (Computing and Telecommunications) reported on the test of UNICOS 5.1 and the plans to make it the normal operating system on the Cray. During the test, everything went well. CTD plans to make it the operating system on Monday, February 19, 1990.

There are some changes that are necessary in the new system. Some directories will disappear to avoid duplication of files. In addition, some of the scratch directory names will change, but users who use the $SCRATCH and $TMPDIR designation will not have to change anything. These designations should be used to avoid having to make changes when the system level directory names change. Anyone having trouble should contact the User Services consultants at extension 2-5405. (See "UNICOS 5.1 Scheduled for Production on February 19, 1990" in the February 1990 *Newsletter.)*

In addition, Fred reported that CTD planned to change the Hydra Protocol Converter implementation. After an hour of no activity, CTD will drop the line and will free the port for use by another user. Fred also reminded users of the February 12, 1990, upgrade of DFSORT and the PL/I and VS Fortran compiler upgrades.

Network Managers Report. Steve Gabelnick (Chemical Technology) reported on the first meeting of the Network Managers Committee on January 10, 1990. Five task groups were formed: Digital Equipment Corporation (DEC) Protocols, Transmission Control Protocol/Internet Protocol (TCP/IP) and Unix, Xerox Network System (XNS), Apple Macintosh and Networks, and Laboratory-Wide Accessible Database on Network Configuration. Each task group will work on hardware and software testing procedures and guidelines that would help users test new equipment and software for systems on, or to be added to, the Laboratory-wide network and minimize the risks of interference with the network's normal operations.

Multinet Installation. Larry Amiot (Computing and Telecommunications) reported on the installation plans for use of Multinet as the standard site-wide communications interface for TCP/IP on the VAX/VMS systems. The license gives the Laboratory unlimited usage at the Illinois site. The features available by using Multinet include Telnet and tn3270, client/server capabilities, remote logons and user shells, an interface to the VMS mail system from Unix, automatic routing information and domain name usage, a limited application of the Network File System (NFS) at this time, and line printer daemon usage. Internet Protocol (IP) numbers and information are available from Linda Winkler (Computing and Telecommunications).

CTD is testing and implementing Multinet to limit the impact on other users. CTD has tested the package on a MicroVAX, and work is under way on the CTD VAX 8700 computer. Documentation is available for $86.70 for the three-volume set, and CTD is putting together documentation specific to the ANL site to aid network administrators. (See "Argonne Acquires Laboratory-Wide Multinet License" in the February 1990 *Newsletter.)*

VAX 8700 Upgrade Plans. Rich Raffenetti (Computing and Telecommunications) reported on the upgrade plans for the VAX 8700 computer. Argonne has issued a Request for Proposal (RFP) for an additional 64 megabytes of memory. A high-density 8 millimeter cartridge tape system is also planned to help back-ups and to allow for additional user service. The major software upgrades include the conversion to Multinet, which is necessary to upgrade to VMS 5.2. Once Multinet is working, CTD plans to upgrade to VMS 5.2 (and possibly VMS 5.3) in March 1990. In FY1992, CTD may replace the VAX 8700 computer. (See "Plans To Upgrade VAX 8700 Computer Capabilities" in the February 1990 *Newsletter.)*

Proposed Courses for Scientific Computing. Dave Malon (Computing and Telecommunications) requested user input on the focus and nature of scientific computing courses to be offered by CTD. Input is necessary on what courses to offer, what form the courses should take, what course level is most appropriate, and what subject matter is most needed. These courses would not just be focused on the use of particular software packages but would emphasize algorithms and their underlying theory. Give the names of users who could provide this kind of input to Dave Malon (Building 221, Room A-105, extension 2-5174, electronic mail address B24753@ANLCV1.CTD.ANL.GOV).

The CUG meeting adjourned at 4:23 p.m.

Ken Miles, CUG Secretary

MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD JANUARY 11, 1990

Chairperson Mary Warren (Energy, Environmental and Biological Research) opened the meeting at 12:10 p.m.

The meeting began with a joint presentation by Floyd Bennett (Energy, Environmental and Biological Research) and Lee Wagar (Graphic Arts) on options that are available in various desktop publishing systems and graphics software packages, with emphasis on factors to consider when you plan to use screens, fill patterns, or reverse type. Floyd discussed some difficulties he had with a newsletter he helped produce. The author had input the text by using WordPerfect software on an IBM Personal Computer, had combined the text with graphics, and had formatted the document by using Ventura Publisher. This package was printed on an Apple LaserWriter at a resolution of 300 dots per inch (dpi). Floyd took the camera-ready hardcopy to Graphic Arts, where the job was printed from paper plates. In the final printed copy, the screens that were used to highlight sections of the text partially disappeared, and the contrast between the text and the screens was very muddy. This difficulty occurred because the final printed page was two generations away from the original hardcopy, and a little of the detail is always lost with each generation of the printing and production cycle. Thus, if dots are small, they will begin to disappear--a mechanical difficulty over which Graphic Arts has limited control. Floyd and Lee suggested several solutions.

One solution is to use metal rather than paper printing plates. This method costs more, so Floyd tried a different approach--sending the package on disk to the Graphic Arts Linotronic typesetter, which prints at a high degree of resolution (more dots per inch). Therefore, the printed image can be much sharper. In Floyd's case, however, the unexpected occurred: Because of the smaller dots, the screens disappeared completely. (If the dot in the screen is actually telling the printer to print the smallest dot it can, a 1,270-dpi device will print dots that are 4 times smaller in linear dimension and 16 times smaller in area than the dot printed by a 300-dpi device.) Floyd then tried other printers (including Apple LaserWriters with different resolutions and the QMS color printer) and found that the output from these devices varied a great deal. He discovered another solution. By "fooling the printer" (that is, telling it that he was printing the document in a particular color), he could alter the degree of "grayness" in the final printed screens. By comparing the samples, he could determine which instructions to use to obtain the best results.

Lee Wagar then discussed some illustrations that contained both screened areas and letters with "drop shadows" behind them. When printed, if the drop shadows were light enough to be distinguished from the letters in front, the screens disappeared; if the screens were clearly visible, the drop shadows were too dark and indistinguishable from the letters in front. Lee suggested another solution: to transfer the data on disk directly to film rather than paper. When printing plates are made from film, the screens retain their clarity. In conclusion, Lee suggested that any time you work on a project for which the outcome is uncertain, you should call your Graphic Arts Customer Service Representative well before the deadline to make some test runs of questionable sections of a document.

Lee said that Graphic Arts has a scanner that can provide output at a 300-dpi resolution and in 16 shades of gray. This level of quality, however, is not adequate to print sharp copies of photographs or continuous-tone materials. She also mentioned that the addresser is now running. It has printed labels from IBM Personal Computers and Apple Macintosh Filemaker II files. If you would like to use the machine, call Lee at extension 2-5603. Graphic Arts is testing which files the addresser will read on a case-by-case basis.

Rich Nixon (Graphic Arts) requested that users call Graphic Arts if they notice anything strange on their bills. In attempting to correct some errors from October 1989, the Accounting Department may have undercharged on November 1989 and December 1989 bills (which will be corrected on the January 1990 bills). Rich also said that Graphic Arts will probably install a new press in the summer to replace one that is 25 years old. The new press will be able to print on coated stocks and to provide full ink coverage on 11-by-17 inch pages--jobs that are now sent offsite. It should also have much greater throughput capability.

Joe Paulini (Graphic Arts) mentioned two items of interest. First, he intends to distribute the *Graphic Arts Users Guide* at the next Graphic Arts Users Group meeting. Second, Graphic Arts staff members are conducting tours to provide clerks, secretaries, and other users with more information about their facilities and capabilities. The tours (which consist of five to seven people) last about an hour. If you would like to send a group over, please call Joe at extension 2-8162.

The main topic of the next meeting will be quality control. If you have any samples of documents that you have had trouble with, please contact Mary Warren at extension 2-8719.

The next meeting will be held on Thursday, March 8, 1990, at noon in Building 201, Room 274.

Marita Moniger, Graphic Arts Users Group Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD FEBRUARY 14, 1990

Bob Kampwirth (Materials Science) opened the meeting at 11:00 a.m.

Apple Corporation is investigating setting up a regional or national Scientific Users Group to address visualization, data acquisition and analysis, etc. Anyone who is interested can call Bob Kampwirth at extension 2-5521. Currently, Argonne is beta testing the X Window System for the Apple Macintosh. For details or to participate in the test, call Ron Shepard (Chemistry).

John Mattson (Materials Science) reported that the next meeting of the Macintosh Users Group Programmers Special Interest Groups (March 7, 1990) will concentrate on data acquisition by different programming methods (Basic, HyperTalk, LabView, etc.).

You can optimize printing on an Apple LaserWriter Plus by installing the most current read-only memory (ROM). (Version 49 is the latest). For further information or assistance, contact Chuck Beck (Electronics).

Paul Steimle (Environmental Assessment and Information Sciences), Macintosh Virus Abatement Task Force Chairman, reported that there is a continuing problem with viruses onsite and with infected systems not being reported properly to Jean Troyer (Computing and Telecommunications), the ANL Computer Protection Manager, by the divisional Computer Protection Program Coordinators. All Apple Macintosh users are reminded that Jean must be informed of all infections by the coordinators and that Paul is also available to help, if needed. The locations of anti-viral software are:

- Paul Steimle's Apple Macintosh (TOPS folder, Claris Public Folder)
- Rodney East's AppleShare Server Volume (AppleTalk Zone: MSD 223 Upstairs, File Server: MSD 223 AS 1, Server Volume: MSD Shared Volume, Folder: MSD Public Folder [log on as GUEST])
- Bill Shack's Apple Macintosh (TOPS folder, Claris Public Folder)
- CTD Workstation Evaluation and Demonstration Room Apple Macintoshes (Building 221, Room A-142)
- CTD VAX 8700 AppleShare Server Volume (log on as GUEST)

The software includes (1) Vaccine (Virus Prevention), (2) GateKeeper Aid (Virus Prevention), (3) Disinfectant (Virus Detection/Elimination), and (4) Virus Rx (Virus Detection).

Because the infection paths are not yet identified, the public domain Apple Macintosh disks are temporarily pulled from service. Carmen Sabau (Chemical Technology) is chairing a committee made up of Alan Krauss (Chemistry), Floyd Dunn (Reactor Analysis and Safety), Stan Ockers (Materials Science), and Fred Schmitz (Chemistry) that is exploring ways to make these disks publicly available again.

Alan Krauss presented the spreadsheet Informix Wingz 1.1. It is optimized for 68030 processors and its strongest features include graphing, programmability, and computation. Its extensive graphing capabilities include 2-D and 3-D, wireframe, contour, polar, and the usual business graphics. It provides the HyperScript programming language that looks like HyperCard and a level of functioning above macro facilities (including the ability to create help menus and HyperCard-like buttons). Wingz, Excel, and Full Impact all have different strong points. Alan has a disk comparing Wingz and Excel feature by feature.

The March 1990 meeting will include the Microsoft Excel 2.2 spreadsheet and the Systat statistical analysis package. Tentatively scheduled for the April 1990 meeting is the Ashton-Tate Full Impact 1.1 spreadsheet.

The Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee

Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

Lee Wagar, Acting Macintosh Users Group Secretary

WORKLOAD STATISTICS (DECEMBER 20, 1989, THROUGH JANUARY 30, 1990)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	*END OF MONTH*	*ACTIVE DURING MONTH*
CMS	1,238	1,244	510
Wylbur	1,658	1,669	415
MVS TSO	54	54	8
CICS	1,658	1,669	90
MVS Batch	2,117	2,130	672
VAX/VMS	470	495	272
Cray	420	417	136
All Systems	2,117	2,130	987

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				*SESSION*	*CPU*
	PRIME	*NIGHT*	*WEEKEND*	*TOTAL*	*TIME (HRS)*	*TIME (HRS)*
INTERACTIVE						
CMS	13,363	2,527	3,495	19,385	45,536.5	124.93
Wylbur	8,809	365	856	10,030	9,264.9	11.91
MVS TSO	152	1	1	154	121.1	0.38
CICS	39	35	51	125	0.0	4.90
VAX/VMS	9,630	963	1,248	11,841	14,531.6	286.24
Cray	101	16	18	135	1,556.1	2.91
IBM BATCH						
Class U	9,316	1,940	2,334	13,590	n.a.	45.79
Class W	18,308	1,493	2,285	22,086	n.a.	184.38
Class X	0	912	21	933	n.a.	93.56
Class Y	0	9	1,565	1,574	n.a.	71.80
Nonmain	20,489	2,807	3,873	27,169	n.a.	0.00
Total	48,113	7,161	10,078	65,352	n.a.	395.53
CRAY BATCH						
u	101	16	18	135	n.a.	2.91
w	2,862	195	467	3,524	n.a.	211.33
x	1,071	120	403	1,594	n.a.	68.89
y	3,377	854	1,810	6,041	n.a.	364.69
Total	7,411	1,185	2,698	11,294	n.a.	647.82
VMS BATCH						
W_BATCH	1,147	962	1,584	3,693	n.a.	47.47
X_BATCH	17	29	2	48	n.a.	113.15
Y_BATCH	5	11	11	27	n.a.	51.31
Total	1,169	1,002	1,597	3,768	n.a.	211.93

INPUT/OUTPUT

Lines Printed	
Local	11,072,714
Remote	49,877,399
Fiche	36,356,694
Cards Punched-Local Only	34,868
Tape Mounts	8,649
Microfiche Developed	4,427
Microfiche Frames Developed	801,191

GRAPHICS

	# OF JOBS	*# OF FRAMES*
CalComp Jobs	96	n.a.
Matrix 35mm Color	12	71
Matrix-8 x 10	1	1
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	55	542
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	2	4,604
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	24,542
New Tapes Saved	436
Tapes Released	498
Datasets Exported to Tape	4,111
Datasets Imported from Tape	1,161

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (JANUARY 1 THROUGH JANUARY 30, 1990)

	Monthly Totals		*Scheduled*			*Unscheduled*	
		Hardware	*Software*	*Other*	*Hardware*	*Software*	*Other*
			CMS				
All Shifts							
Interruptions	10.00	3.00	4.00		2.00	1.00	
Hrs Unavailable	8.56	1.91	5.50		0.48	0.66	
MTF/Unscheduled	237.14				355.71	711.43	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00					1.00	
Hrs Unavailable	0.66					0.66	
MTF/Unscheduled	263.33					263.33	
			WYLBUR				
All Shifts							
Interruptions	13.00	2.00	6.00	1.00	2.00	2.00	
Hrs Unavailable	34.06	2.33	7.48	1.58	18.53	4.13	
MTF/Unscheduled	171.48				342.96	342.96	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00					2.00	
Hrs Unavailable	4.13					4.13	
MTF/Unscheduled	129.93					129.93	
			MVS TSO				
All Shifts							
Interruptions	14.00	2.00	7.00	1.00	2.00	2.00	
Hrs Unavailable	35.56	2.33	8.98	1.58	18.53	4.13	
MTF/Unscheduled	171.10				342.21	342.21	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00					2.00	
Hrs Unavailable	4.13					4.13	
MTF/Unscheduled	129.93					129.93	
			JES3				
All Shifts							
Interruptions	14.00	2.00	6.00	1.00	2.00	3.00	
Hrs Unavailable	33.83	2.25	7.26	1.53	18.46	4.31	
MTF/Unscheduled	137.23				343.08	228.72	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	3.00					3.00	
Hrs Unavailable	4.31					4.31	
MTF/Unscheduled	86.56					86.56	
			CICS				
All Shifts							
Interruptions	4.00			1.00	1.00	2.00	
Hrs Unavailable	24.75			1.58	18.21	4.95	
MTF/Unscheduled	231.75				695.25	347.62	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00					2.00	
Hrs Unavailable	4.95					4.95	
MTF/Unscheduled	129.52					129.52	
			VAX/VMS (VAX 8700)				
All Shifts							
Interruptions	10.00	2.00	1.00		1.00	6.00	
Hrs Unavailable	6.86	3.53	0.25		0.66	2.41	
MTF/Unscheduled	101.87				713.13	118.85	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	7.00	1.00				6.00	
Hrs Unavailable	2.83	0.41				2.41	
MTF/Unscheduled	43.52					43.52	
			CRAY				
All Shifts							
Interruptions	13.00	5.00	4.00		2.00	2.00	
Hrs Unavailable	23.61	12.91	3.75		4.25	2.70	
MTF/Unscheduled	174.09				348.19	348.19	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	3.00				1.00	2.00	
Hrs Unavailable	3.20				0.50	2.70	
MTF/Unscheduled	86.93				260.80	130.40	

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (DECEMBER 20, 1989, THROUGH JANUARY 30, 1990)

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
			ADVANCED PHOTON SOURCE				
130	ADVANCED PHOTON SOURCE DIV	$3,096	$103	$0	$574	$155	$3,928
272	ADVANCED PHOTON SOURCE	$68	$0	$70	$40	$157	$335
341	APS ACCELERATOR PHYSICS	$246	$5,077	$819	$180	$159	$6,482
345	APS VACUUM	$1	$3,959	$0	$40	$4,983	$8,983
347	APS CONTROLS	$76	$3	$0	$1	$6	$86
348	APS MAGNETS	$100	$0	$0	$1	$1	$102
349	APS POWER SUPPLIES	$64	$0	$0	$3	$0	$67
350	APS DIVISION MANAGEMENT	$11	$0	$0	$0	$0	$11
351	APS INSERTION DEVICES	$7	$3	$0	$0	$0	$11
360	APS CONVENTIONAL FACILITIES	$770	$1	$0	$16	$162	$949
361	APS PROJECT DIRECTION	$17	$0	$0	$0	$0	$17
362	APS MANAGEMENT GENERAL	$22	$0	$0	$0	$0	$22
		------	------	----	----	------	-------
SUBTOTAL		$4,479	$9,147	$890	$855	$5,623	$20,994
			ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH				
110	BIO & MED RES DIV	$2,516	$2,449	$352	$979	$1,302	$7,599
125	TECHNOLOGY TRANSFER CENTER	$224	$0	$0	$8	$75	$307
149	ENVIROMMENTAL RESEARCH DIV	$3,508	$407	$1,441	$1,005	$879	$7,239
155	ENERGY SYSTEMS DIVISION	$3,764	$180	$730	$691	$919	$6,284
165	ENV ASSESS & INFO SCI DIV	$13,736	$11,393	$1,622	$3,155	$4,319	$34,225
174	ENER/ENV/BIO PROG DIR	$23	$0	$0	$7	$0	$30
197	SPECIAL PROJECTS OFFICE	$331	$4	$0	$34	$88	$457
246	ES-NAT'L ENERGY SOFTWARE CTR	$122	$0	$0	$702	$430	$1,254
274	ENER/ENV/BIO RES PROG ADM	$130	$0	$0	$1	$75	$206
		-------	-------	------	------	------	-------
SUBTOTAL		$24,354	$14,433	$4,146	$6,581	$8,087	$57,601
			ENGINEERING RESEARCH				
102	EBR-II PROJECT-ANL WEST	$3,821	$69	$664	$574	$95	$5,224
107	CHEMICAL TECHNOLOGY DIVISION	$1,008	$208	$1	$745	$346	$2,307
112	REACTOR ANAL & SAFETY	$25,117	$399	$4,057	$7,175	$5,280	$42,028
114	MATLS & COMP TECH DIV	$6,151	$2,634	$146	$2,452	$1,875	$13,258
115	ENGINEERING PHYSICS DIVISION	$38,913	$3,702	$44,367	$8,811	$9,614	$105,407
117	APPLIED PHYSICS-ANL WEST	$4,166	$6	$6,603	$294	$378	$11,447
118	REACTOR EXP & EXAM DIV	$3,101	$293	$5	$121	$212	$3,731
119	ANALYTICAL LABORATORY ANL-WES	$0	$0	$0	$0	$30	$30
171	ENGRG RES PROG DIR	$6	$0	$0	$0	$81	$87
211	ENGINEERING PHYSICS DIVISION	$65	$0	$0	$11	$2,825	$2,902
269	CHEM TECH DIV-ANALYTICAL CHEM	$63	$0	$0	$0	$34	$97
271	ENGRG RES PROG ADMIN	$207	$0	$0	$4	$165	$377
		-------	------	-------	-------	-------	--------
SUBTOTAL		$82,618	$7,311	$55,843	$20,187	$20,935	$186,894
			PHYSICAL RESEARCH				
105	MATERIALS SCIENCE DIVISION	$2,005	$8,053	$14,307	$3,423	$-2,213	$25,574
109	PHYSICS DIV	$3,622	$1,696	$2,942	$2,487	$507	$11,255
120	CHEMISTRY DIV	$1,676	$4,493	$89	$681	$436	$7,376
136	INT PULSE NEUT SOURCE PROG	$90	$758	$2,326	$410	$76	$3,660
137	HIGH ENERGY PHYSICS DIV	$1,412	$3,881	$11,091	$1,013	$1,063	$18,460
139	DIV OF EDUCATIONAL PROGRAMS	$2,263	$0	$0	$259	$94	$2,616
145	MATHAMATICS & COMPUTER SCI DI	$245	$29	$1,024	$2,164	$4,328	$7,790
146	CTD DIV - SCI APPL & RES	$104	$983	$2,648	$386	$48	$4,170
273	PHYSICAL RESEARCH PROGRAM ADM	$66	$0	$0	$25	$30	$120
		-------	-------	-------	-------	------	-------
SUBTOTAL		$11,484	$19,893	$34,426	$10,848	$4,369	$81,020
			EXTERNAL				
751	FERMI NATIONAL LABORATORY	$1,131	$0	$0	$460	$535	$2,126
752	NAVY	$14,213	$0	$0	$1,254	$8,459	$23,926
753	MORGANTOWN ENERGY TECH CENTER	$22	$0	$0	$650	$0	$672
754	DEPARTMENT OF ENERGY AT ANL	$7	$0	$0	$8	$0	$15
755	ROCKWELL INTERNATIONAL	$4	$0	$0	$0	$5	$9
756	LOS ALMOS	$33	$0	$0	$0	$0	$33
760	ABBOTT LABORATORIES	$17	$136	$3,966	$472	$0	$4,591
762	STATE UNIVERSITY OF NEW YORK	$42	$72	$7	$0	$144	$267
763	GENERAL ELECTRIC COMPANY	$0	$0	$0	$0	$0	$0
765	WESTINGHOUSE HANFORD COMPANY	$4	$0	$5	$0	$0	$9
766	BECHTEL NATIONAL, INC.	$88	$730	$3,896	$265	$1	$4,979
767	NUMERICAL ALGORITHMS GROUP, I	$0	$0	$19	$0	$0	$19
771	PURDUE UNIVERSITY	$6	$0	$0	$0	$0	$6
774	BATTELLE	$0	$0	$0	$0	$0	$0
775	SMITHSONIAN	$0	$0	$0	$0	$4	$4
776	UNIVERSITY OF ILLINOIS AT CHI	$0	$0	$0	$0	$0	$0
777	UNIVERSITY OF CHICAGO AT ANL	$192	$0	$0	$135	$-361	$-34
778	ARGONNE CREDIT UNION	$11	$0	$0	$0	$0	$11
779	UNIVERSITY OF ILLINOIS AT CHI	$11	$0	$0	$0	$0	$11
780	NEW BRUNSWICK LABORATORY	$24	$0	$0	$0	$0	$24
781	STATE OF ILL. DEPT. MENTAL HE	$0	$0	$0	$0	$9	$9
782	PACKER ENGINEERING	$0	$600	$0	$91	$215	$906
		-------	------	------	------	------	-------
SUBTOTAL		$15,804	$1,539	$7,893	$3,336	$9,010	$37,582

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
			OPERATIONS				
143	SUPP SERV DIV - ELEC DEPT	$84	$18	$0	$223	$110	$436
148	HUMAN RESOURCES-MEDICAL DEPT	$1,429	$0	$0	$177	$366	$1,972
150	SUPPORT SERV DIV - SPEC MATLS	$273	$0	$0	$52	$150	$475
161	TECH INFO SERVICES DEPT	$1,171	$198	$0	$183	$1,726	$3,278
201	OFFICE OF THE DIRECTOR	$316	$0	$0	$170	$308	$793
202	OFC OF CHIEF OPER OFCR	$38	$0	$0	$65	$30	$132
210	SUPP SERV DIV - CENT SHOPS	$156	$0	$0	$55	$43	$254
216	SUPPORT SERVICES DIVISION	$129	$0	$0	$39	$30	$198
222	PLANT FAC & SERV-LODGING FAC	$0	$0	$0	$0	$30	$30
232	SUPPORT SERV DIV - SECURITY	$482	$0	$0	$2	$328	$812
234	SUPP SERV DIV-HEALTH PHY	$739	$0	$0	$49	$281	$1,069
235	SUPP SERV DIV-ENV SAFE HEALTH	$1,144	$1	$0	$72	$387	$1,602
236	SUPPORT SERV DIV - FIRE DEPT	$0	$0	$0	$0	$30	$30
245	COMPUTING AND TELECOM DIV	$20,035	$0	$0	$3,196	$3,228	$26,459
247	COMP & TEL DIV - COM SERV	$3,861	$0	$0	$414	$1,349	$5,624
260	SUPP SERV DIV-GRAPHIC ARTS	$254	$264	$0	$46	$104	$667
275	OFFICE OF PUBLIC AFFAIRS	$663	$0	$0	$104	$107	$874
276	OFC PUB AF - MOTN PIC UNIT	$52	$0	$0	$2	$4	$57
296	TELECOM COST/RECOVERY	$0	$0	$0	$285	$0	$285
315	SUPP SERV DIV-MATLS & SERV	$4,237	$0	$0	$761	$401	$5,399
316	PLANT FAC & SERV-VEH MAINT	$0	$0	$0	$0	$107	$107
317	PLANT FAC & SERV-DRIV&RIG SER	$17	$0	$0	$0	$30	$47
319	SUPP SERV DIV-TRAVEL OFC	$13	$0	$0	$157	$30	$199
322	SUPP SERV DIV-PROCUREMENT	$56	$0	$0	$1	$31	$89
333	QA, ENVIR & SAFETY OFC	$160	$2	$0	$20	$132	$314
400	OFC OF CHIEF FIN OFFICER	$69,082	$0	$0	$1,915	$12,691	$83,688
401	ACCOUNTING	$0	$0	$0	$25	$30	$55
402	OFC CHIEF FIN OFCR-DATA ENTRY	$17	$0	$0	$125	$0	$142
403	BUDGET OFFICE	$0	$0	$0	$0	$30	$30
410	HUMAN RESOURCES DEPARTMENT	$8,768	$0	$0	$946	$1,333	$11,047
412	AFFIRM ACTION PROGRAM	$304	$0	$0	$88	$120	$512
501	PLANT FAC & SERV-BLDG MAINT	$50	$0	$0	$38	$482	$570
502	PLANT FAC & SERV-INSTALLATION	$0	$0	$0	$0	$47	$47
503	PLANT FAC & SERV-GROUNDS	$0	$0	$0	$0	$30	$30
504	PLANT FAC & SERV-CUSTODIAL	$0	$0	$0	$0	$30	$30
505	PLANT FAC & SERV-WASTE MGMT O	$78	$0	$0	$46	$56	$180
506	PLANT FAC & SERV-PLANT MGR OF	$320	$0	$0	$83	$31	$434
510	PLANT FAC & SERV-UTILITY SYST	$0	$0	$0	$0	$30	$30
512	PLANT FAC & SERV-FAC PLNG/ENG	$641	$0	$0	$18	$163	$822
530	SITE MGRS OFC-ANL WEST	$52	$0	$0	$77	$31	$160
531	PERSONNEL-ANL WEST	$69	$0	$0	$11	$30	$110
532	SPECIAL MATLS-ANL WEST	$1,122	$0	$0	$183	$324	$1,628
533	ACCOUNTING-ANL WEST	$0	$0	$0	$0	$30	$30
534	PURCHASING-ANL WEST	$0	$0	$0	$0	$30	$30
535	SECURITY - ANL WEST	$28	$0	$0	$0	$30	$58
536	SAFETY STAFF-ANL WEST	$287	$0	$0	$15	$32	$334
537	INFORMATION SERVICE-ANL WEST	$0	$0	$0	$0	$30	$30
538	MATLS HANDLING-ANL WEST	$110	$0	$0	$10	$30	$150
550	COMPUTER APPL & SERV - ANL-W	$144	$0	$0	$65	$30	$239
551	RAD MONITORING-ANL WEST	$11	$0	$0	$0	$30	$41
554	MACHINE SHOP-ANL WEST	$27	$0	$0	$2	$30	$59
556	SITE ENGRG-ANL WEST	$113	$143	$0	$16	$30	$302
557	PLANT SERVICES-AW-SERVICE REQ	$94	$0	$0	$8	$30	$133
558	PLANT SERVICES-AW-FUNCTION	$6	$0	$0	$0	$0	$6
559	FOOD SERVICES - ANL WEST	$0	$0	$0	$0	$30	$30
561	OFC OF QUALITY ASSURANCE - AW	$6	$0	$0	$0	$31	$37
563	TALENT RESOURCE POOL-ANL WEST	$0	$0	$0	$0	$30	$30
SUBTOTAL		$116,635	$626	$0	$9,743	$25,225	$152,229
TOTAL		$255,375	$52,949	$103,198	$51,551	$73,248	$536,320

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	**Onsite (Illinois)**	**Onsite (Idaho)**	**Offsite (Area Code 708)**
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-3270	n.a.	972-3270
X.25 Terminal Multiplexor 300 to 19.2K Bits Per Second(Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-2525	n.a.	972-2525
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-8700	n.a.	972-8700
Argonne TCP/IP Network 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-5588	n.a.	972-5588
Argonne MFEnet Dial-Up 300 or 1200 Bits Per Second	2-7920	n.a.	972-7920

Tymnet Commercial Packet-Switching Network
Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	**VM/SP**	**VMS**	**MFEnet Gateway**
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.

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COMPUTER-BASED TRAINING COURSES

CTD currently offers 37 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	**Course Title**
VMSCAI	Introduction to VAX/VMS
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH	Introduction and Advanced Concepts of Xedit

CRWTH CBT Courses

(Enter CBT "course name" at the CMS prompt.)

General Data Processing Courses	
DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center
Application System Courses	
ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS
CMS Courses	
CMS	Using CMS
XEDIT	Using XEDIT
SAS Courses	
SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph
Tellagraf Course	
TELLAGRA	Using TELLAGRAF
MVS Batch Courses	
JCL	Introduction to Basic JCL
Basic Project Management Course	
MANAGE	Project Management Concepts and Principles (see also ASPROJ)
TSO Courses	
TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)

Miscellaneous Courses
(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting

Argonne National Laboratory
Computing and Telecommunications Division Rates
Revised February 23, 1990

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. In fulfilling this mission, the Division:

- Performs research and development in advanced scientific computing and telecommunications technologies.
- Performs applications-oriented research in supercomputing, networking, scientific visualization, parallel processing, and other areas of computer science.
- Participates in developing Laboratory initiatives and technology transfer programs in scientific computing.
- Provides leadership in optimizing computing and information services and in disseminating computer-related technologies throughout the Laboratory.
- Coordinates the development of and provides assistance for an integrated hierarchy of computing systems.
    - — Provides leadership in the use of supercomputers and large-scale central computers.
    - — Provides resources, technical guidance, and other assistance in distributed minicomputers, scientific and engineering workstations, and personal computers.
- Manages the Laboratory's central computing production systems.
- Manages the Laboratory's voice and data communications systems.
- Works with Argonne divisions, departments, programs, user groups, and Laboratory management to define needs and priorities.
- Develops plans, prepares recommendations, and implements computing policy for the Computing Policy Committee.

GENERAL INFORMATION

Eligible users. The computing services provided at Argonne National Laboratory are generally available to all members of the Laboratory; DOE and other U.S. Government agencies are served by arrangement. In addition, other not-for-profit organizations may apply for permission to use these computing services. Commercial firms are generally not eligible to use Argonne National Laboratory computing services.

Shift differentials. The week is divided into three shifts. Applicable shift differentials for job charges are based on the time an interactive session starts or a batch job begins execution; and rates are reduced outside prime shift to reflect the lower desirability, lighter load, and reduced operations staffing off prime shift and during holiday periods. The three shifts are defined as follows:

Prime	Monday through Friday, 7:00 a.m. to 7:00 p.m.
Overnight	Monday through Friday, 7:00 p.m. to 7:00 a.m. the following morning.
Weekend	Saturday 7:00 a.m. to Monday 7:00 a.m. and Holidays.

Periods may be preempted for maintenance, housekeeping, and systems time, especially during the overnight and weekend shifts; unavailability is announced when possible the afternoon before scheduled periods of unavailability.

Service premiums and discounts. Some of the charges for batch computing services listed here include service premiums and discounts (that is, MVS batch and VMS batch). During each shift, at least two levels of service are available: (1) an expedited service and (2) a regular service. Users select the level of service they require and indicate their requests by specifying CLASS= on MVS JOB cards or the appropriate batch queue on the **SUBMIT** command in VAX/VMS. We measure service as the delay between the time the job is submitted and the time it begins execution. The computer operating system and computer operators schedule jobs to satisfy users' requests for service. In MVS and VMS, charges may be reduced if the service requested is not provided.

Special arrangement jobs. Special arrangements are necessary to schedule the running of jobs that exceed established scheduling limits for time and/or memory resource allocations or that need special operator attention to schedule for other reasons. Users with these special jobs need to call Users Services. User Services will determine if the jobs can be processed with special arrangements or not. User Services will then arrange with Computer Operations for scheduling approved special jobs.

Surcharge to non-ANL users. Outside users with computer accounts funded by DOE but not by ANL incur a surcharge of 24.66 percent. The surcharge for DOE-affiliated users outside the Laboratory is analogous to the overhead charge incurred by programmatic divisions for Laboratory general administrative expense. Outside users with computer accounts funded neither by DOE nor by ANL incur a surcharge of 56.63 percent. Outside computer users not affiliated with DOE incur a nonadditive combination of surcharges for Laboratory general administrative expense, Laboratory general depreciation, depreciation of computing equipment, and DOE administrative expense.

Limited availability. Some of the computing services listed here are available in limited quantities or to only certain users, either for technical or policy reasons. For example, online disk storage and telecommunications ports are limited to available hardware, and MVS TSO enrollment is limited. Users should consult with CTD before making plans or commitments that require specific services or resources.

Refund policy. A computer user is entitled to a refund of charges for resource usage that occurred as a result of hardware failure, system software failure, error on the part of the CTD staff, or similar circumstances beyond the user's control. The refund will not cover the parts of the job that can reasonably be skipped or suppressed in the rerun. Regardless of the cause of the failure, *no more than 15 minutes worth of CPU time will be refunded for a batch job*; users with programs that require more than 15 minutes for computation should save intermediate results at least every 15 minutes for recovery purposes in case of failure. Refunds of less than $50 are not processed. (However, users may submit combined refund requests that total more than $50.) Users are responsible for backing up their own datasets; refunds will not be given for the cost of recreating lost or damaged datasets. Refunds are also not provided for I/O errors on personal tape reels. To apply for a refund, fill out a Computer Refund Request Form (available from the Consulting Office) and send it with adequate supporting evidence to the Consulting Office. Your request will be reviewed; and, if a refund is due, it will be applied to your account.

COMPUTER MANUALS

Users may purchase computer manuals at the Document Distribution Counter in Building 221, Room A-134, or may order manuals by calling extension 2-5405. Please consult *Recommended Documentation for Computer Users at ANL* (ANL/TM 379), for information on our policies, procedures, and recommendations. The charge for computer manuals is based on their direct cost plus an amount for ordering, inventory, and handling costs.

INTERACTIVE SERVICES

Cray UNICOS (Cray X-MP/14). Cray Research's UNICOS system provides interactive Unix services primarily for those users requiring access to the Cray interactive debugger or doing interactive graphics. Access to interactive UNICOS is through the TCP/IP network or the VAX Supercomputer Gateway.

DEC VMS (VAX 8700 and VAX 8250). The Digital Equipment Corporation VMS system is an easy-to-use environment for interactive programming and screen-oriented applications. The VAX 8700 has a range of modern programming tools, scientific libraries, and database systems oriented to (but not limited to) scientific and engineering applications. The VAX 8250 serves as the VAX Supercomputer Gateway to the Cray X-MP, providing Cray interactive access and tools for running Cray batch jobs.

IBM VM/SP CMS (IBM 3033). VM/SP is an efficient, easy-to-learn interactive system for executing programs. It has a separate file system; but it has a link to submit jobs to, and retrieve output from, the batch systems. Many useful applications programs, compilers, and utilities can be used interactively in VM/SP; and batch programs can be developed in VM/SP and then installed for production in MVS batch without change.

OBS Wylbur (IBM 3033). Wylbur is an efficient, easy-to-learn interactive system for editing files and managing MVS batch jobs. It shares access to most disks used by MVS batch jobs; and it submits jobs to, and retrieves output from, the MVS batch system. Users may write and use powerful exec programs in Wylbur to perform frequent or repetitive series of commands, but Wylbur does not execute other programs (such as Fortran or user applications). Wylbur charges are predominated by session time and include very little CPU time for typical user work; the CPU time rates are set to compensate for Wylbur's underreporting of the user's CPU use.

IBM CICS/VS (IBM 3033). IBM's Customer Information Control System (CICS) is a general-purpose database and data-communication processing system that provides several of Argonne's administrative computing applications. The Laboratory's Personnel and Payroll Systems, the Medical System, and the Argonne Materials Ordering System (AMOS) are presently using CICS for online inquiry and updating of information contained in their application databases. User access to these CICS application software packages is authorized on an application-by-application basis.

IBM MVS TSO (IBM 3033). MVS TSO is intended only for users whose applications require it. TSO consumes more resources than VM/SP or Wylbur with batch for performing comparable tasks; our capacity plan for allocating computing resources requires restricting TSO usage in favor of VM/SP and Wylbur services, because they make more effective use of computer resources. Therefore, MVS TSO enrollment is limited; it is not automatic as with VM/SP, Wylbur, or batch, but is subject to approval by CTD management. MVS TSO has been installed essentially without local modifications; most applications packages and language processors are not available in MVS TSO, and we do not plan to offer TSO introductory courses and consulting services. Users may apply for MVS TSO authorization by completing a brief MVS TSO enrollment form available from Account Services (Building 221, Room A-147).

BATCH SERVICES

Cray UNICOS. The Cray Research, Inc. UNICOS operating system is derived from the AT&T Unix System V operating system with Berkeley Unix enhancements and includes the Network Queuing System (NQS) for managing batch jobs. The job CPU time estimate is limited to one hour during the day shift and three hours during the other shifts. You may submit batch jobs to one of the UNICOS batch job queues mentioned below.

You control the scheduling and charging of an NQS batch job by placing it into one of the four priority-based batch queues. In decreasing order of NQS job selection priority, UNICOS job dispatching priority, and resource charging rate, these queues are designated by the single lowercase characters: **u**, **w**, **x**, and **y**.

Regardless of queue, jobs requesting more than one hour of CPU time will not run during the prime shift, unless the UNICOS system is unusually lightly loaded; jobs in all queues that require no more than one hour of CPU time will be eligible to run anytime. However, during the prime shift when a backlog of higher priority (**u** and **w**) jobs develops, the UNICOS operators may stop scheduling **x** and **y** jobs and may suspend **x** and **y** jobs that have already started but not completed. The operators will restart suspended jobs and resume scheduling **x** and **y** jobs when the backlog diminishes or prime shift ends.

DEC VMS. The Digital Equipment Corporation VMS system batch services are entirely compatible with VMS interactive applications that do not require terminal input. The batch service classes (W, X, and Y) are obtained by submitting jobs to the following queues with the **SUBMIT** command:

VAX 8700 QUEUES[1]

W_BATCH and SHORT_W_BATCH. The W_BATCH queues provide regular batch service within a few hours at any time of day. The SHORT_W_BATCH queue is the default queue if none is specified. The SHORT queue has a maximum time limit of five minutes.

X_BATCH. The X_BATCH queue is for jobs that you wish to defer until the overnight shift. It provides overnight service if submitted by 5:00 p.m. Monday through Friday. At our discretion, we may start X_BATCH queue jobs during the prime shift.

Y_BATCH. The Y_BATCH queue provides lower charges than the X_BATCH queue; batch jobs in this queue will normally run overnight or weekends (if resources are available), when the job will have little impact on other processing. There are no guarantees when Y_BATCH jobs will run.

SPECIAL_X_BATCH and SPECIAL_Y_BATCH. The SPECIAL_X_BATCH and SPECIAL_Y_BATCH queues are for jobs that need resources exceeding normal limits. Make arrangements with Computer Operations to release these jobs. As the name implies, jobs are charged at the same rates as X_BATCH and Y_BATCH, respectively.

VAX 8250 QUEUES

CRAY_SUBMIT_BATCH. The CRAY_SUBMIT_BATCH queue is always available to run jobs that submit work to the Cray X-MP/14 or require resources of the Cray gateway software. This queue is analogous to the W_BATCH queue that executes on the VAX 8700.

IBM MVS SP (IBM 3033). We offer four classes of MVS batch service that are detailed below. Batch job classes enable users to choose between expedited and regular service; they also permit users to defer execution of batch jobs to shifts with lower rates. Table 1 shows the class of service and shift multipliers that result from the combination of shift differentials and service premiums and discounts selected by the user.

Class U Expedited Batch. Class U provides expedited batch service within a few minutes anytime of day, comparable to response from interactive systems.

Class W Regular Batch. Class W provides regular batch service within a few hours anytime of day. This class is the default.

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[1] Computing rate is determined by the shift in effect when the job starts.

Class X Deferred Overnight Batch. Class X requests that job execution normally be deferred until the overnight shift. It provides assured overnight service if submitted by 5:00 p.m. Monday through Friday but is not eligible to run during prime shift. At our discretion during the day, we may release Class X jobs.

Class Y Deferred Weekend Batch. Class Y provides lower charges than Class X; batch jobs in this class will normally run only on weekends, when the jobs will have negligible impact on other jobs. We make no estimates or guarantees about when they will run.

Central Processing Charging Algorithm

$$SS * [(CPU * R_1) + (STO * R_2) + (I/O * R_3)]$$

Where:

SS = Class of Service/Shift Multiplier (See Table 1)
CPU = CPU Hours Used
STO = CPU Storage Occupancy Megaword Hours Used
I/O = Thousands of Input/Output Requests Issued
R_1 = Central Processor Rate (See Table 2) per CPU hour
R_2 = CPU Storage Occupancy Rate (See Table 2) per megaword hour
R_3 = Input/Output Transfer Charge (See Table 2) per thousand

Table 1: Class of Service and Shift Multipliers

Class	Prime	Overnight	Weekend
Cray X-MP/14 Batch			
u	2.00	1.50	1.50
w	1.00	0.75	0.75
x	0.50	0.50	0.50
y	0.30	0.30	0.30
Cray X-MP/14 Interactive	2.00	1.50	1.50
IBM Batch			
U	2.00	1.50	1.50
W	1.00	0.75	0.75
X	0.50	0.50	0.50
Y	0.30	0.30	0.30
IBM Interactive			
Wylbur	6.00	4.50	4.50
CMS	2.00	1.50	1.50
TSO	3.00	2.25	2.25
CICS	2.00	1.50	1.50
VAX 8700 Interactive	2.00	1.50	1.50
W_BATCH (includes SHORT_W_BATCH)	1.00	0.75	0.75
X_BATCH (includes SPECIAL_X_BATCH)	0.50	0.50	0.50
Y_BATCH (includes SPECIAL_Y_BATCH)	0.30	0.30	0.30
VAX Supercomputer Gateway Interactive	2.00	1.50	1.50
CRAY_SUBMIT_BATCH	1.00	0.75	0.75

Table 2: Central Processing Rates

	R_1	R_2	R_3
	Central Processor	CPU Storage Occupancy	Input/Output Transfers
Cray X-MP/14	$385.00	$100.00	$0.32
IBM 3033s	$150.00	$400.00	$0.32
VAX 8700 Cluster	$100.00	$0.00	$0.32
VAX Supercomputer Gateway	$20.00	$0.00	$0.32

PERIPHERAL, JOB, AND NETWORK SERVICES

These charges do not vary by shift and service level.

Resource	*Unit*	*Rate*
IBM/CMS, VAX/VMS, and Cray Interactive Session Time	Hour	$1.00
Batch Job Setup Charge	Job	0.25
Tape Setup	Tape	1.00
Output Printing	Thousand Lines	0.50
Remote Printing[2]	Thousand Lines	0.15
Files transferred as card images[3]	Thousand Cards	0.15
Output Punching	Thousand Cards	3.50
DatagraphiX AutoCOM II[4]	Fiche	1.00
VAX Cluster Print Queue Set-Up Fee	One-Time	50.00
VAX Cluster Print Queue Subscription Fee[5]	Printer Month	10.00

GRAPHICAL OUTPUT

Resource	*Unit*	*Rate*
Per Job Surcharge	Job	$ 0.15
Frames	Frame	0.02
Device Time		
Matrix	Hour	45.00
FR80 35mm and 105mm	Hour	150.00
FR80 16mm Color	Hour	75.00
FR80 16mm Black and White	Hour	150.00
Materials		
Matrix Color Film	Foot	1.50
Matrix Color Transparency	Foot	6.00
FR80 Color Film	Foot	1.50
FR80 Black and White Film	Foot	0.15
CalComp 5835 Forms Charge	Job[6]	5.00

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[2] Includes print image files sent to VM/SP users and microfiche (ANLVM.FICHE virtual machine).

[3] Includes remote punching.

[4] The ANLVM.FICHE dedicated virtual machine produces computer output microfilm.

[5] In addition to the monthly user charge, users will incur Remote Printing charges of $0.15 per thousand lines printed (see "Remote Printing" above).

[6] In addition to the Forms Charge, users will incur Output Printing charges of $0.50 per thousand lines printed (see "Peripheral, Job, and Network Services" above).

MISCELLANEOUS SOFTWARE, ACCESS, AND USAGE CHARGES

Resource	*Unit*	*Rate*
Basic Cost Center Access Charge	Cost Center Month	$100.00
ANSYS Software Package	CPU Minute	2.04
CTD Staff Effort	Hour	49.30
File Server Subscription Fee	User Month	10.00

DIRECT ACCESS STORAGE

Resource	*Unit*	*Rate*
MVS Disks	Megabyte[7] Day	$ 0.20
CMS Virtual Disks (Minidisk)	Megabyte[7] Day	0.20
VMS Permanent Disks	Megabyte[8] Day	0.20
Cray Permanent Disks	Megabyte[9] Day	0.40
CMS Minidisk Restoration from Back-Up Tape	File or Minidisk	30.00
MVS Dataset Restoration from Back-Up Tape	Dataset	30.00
VMS File Restoration from Back-Up Tape	File	30.00
Cray File Restoration from Back-Up Tape	File	30.00
Fileserver Restoration from Back-Up Tape	File	30.00

TAPE LIBRARY SERVICES

Resource	*Unit*	*Rate*
Library Tape Storage Slot Rental	Tape Day	$ 0.03
Personal Tape Storage Slot Rental	Tape Day	0.08
Disaster Protection Storage Slot Rental	Tape Day	0.08
Library Tape Initial Assignment Processing	Tape	1.50
Personal Tape Number Assignment and Check-In (Includes Cleaning Tape)	Tape	7.50
Purchase of Tape from CTD[10]	Tape	35.00
Credit for Return of Tape by User	Tape	18.00
Cleaning and Testing User-Owned Tape	Tape	20.00
Cleaning User-Owned Tape	Tape	3.00
Transfer Tape to Disaster Protection Storage	Tape	3.00
Library Cartridge Storage	Cartridge Day	0.03
Personal Cartridge Storage	Cartridge Day	0.08
Disaster Protection Storage Slot	Rental Day	0.08
Library Cartridge Initial Assignment Processing	Cartridge	1.50
Personal Cartridge Number Assignment and Check-In	Cartridge	7.50
Purchase of Cartridge from CTD[10]	Cartridge	10.00
Credit for Return of Cartridge by User	Cartridge	5.00
Transfer Cartridge to Disaster Protection Storage	Cartridge	3.00

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[7] A megabyte is 2^{20} or 1,048,576 bytes. Currently online direct access storage is provided on the equivalent of IBM 3380 disks. IBM 3380 disks have 47,476 bytes per track, giving a cost of approximately $0.009055 per track day.

[8] A megabyte is 2^{20} or 1,048,576 bytes or 2,048 disk blocks. VMS disk storage is allocated in blocks that are each 512 bytes. The cost of VMS storage is approximately $0.000098 per block day.

[9] A megabyte is 2^{20} or 1,048,576 bytes or 256 disk blocks. UNICOS disk storage is allocated in blocks that are each 4,096 bytes. The cost of UNICOS storage is approximately $0.001562 per block day.

[10] You cannot remove library tapes from the tape library for temporary use elsewhere. Instead, we recommend that you copy the data to a personal tape for removal from the library. You must purchase library tapes that you choose to remove from the library for use elsewhere; CTD will then reassign your old library tape number to a new tape in the library.

DATA COMMUNICATIONS SERVICES

Resource	*Unit*	*Rate*
ARPAnet Usage	Connect Hour	35.00
Tymnet Usage	Connect Hour	16.00
ANL/FNAL Microwave Access Charge	User Month	285.00
Asynchronous Ports		
1,200 Bits Per Second Dedicated	Port Month	75.00
2,000 to 4,800 Bits Per Second Dedicated	Port Month	110.00
Dial-Up	Connect Hour	0.36
X.25 Multiplexer Port, 1,200 to 9,600 Bits Per Second	Line Month	200.00
IBM 3277 Local Attachment	Port Month	100.00
Binary Synchronous Ports		
1,200 to 9,600 Bits Per Second Dedicated[11]	Port Month	125.00
19.2 Kilobits Per Second Dedicated[11]	Port Month	175.00
50 to 56 Kilobits Per Second Dedicated[11]	Port Month	250.00
2,000 or 4,800 Bits Per Second Dial Up[12]	Station Month	75.00
Additional Station IDs, Dedicated or Dial Up	Station ID Month	35.00
Laboratory-Wide DECnet	Port Month	100.00
Peer-to-Peer File Transfer Network Connection		
1,200 to 9,600 Bits Per Second[13]	Port Month	350.00
19.2 to 50 Kilobits Per Second[13]	Port Month	450.00
Single User NJE Routing Through Divisional VAX[13]	Station Month	25.00
Multiuser NJE Routing Through Divisional VAX[13]	Station Month	150.00
Single User NJE Routing Through Central VAX[13]	Station Month	25.00
Multiuser NJE Routing Through Central VAX[13]	System Month	200.00
Single User Unix NJE Routing	Station Month	12.50
RADS Remote Job Entry Station[11]	Station Month	875.00
Printerms Maintenance	Month	25.00
DECwriter III Maintenance	Month	25.00
Vadic Modem 1,200 Bits Per Second Maintenance	Month	10.00
VAX Cluster Dedicated Terminal Server Port	Port Month	65.00
VAX Cluster Dedicated Terminal Server Port Set-Up Fee	One Time	1,065.00

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[11] Includes one station ID and one dedicated port.

[12] Includes one station ID.

[13] The Laboratory-Wide DECnet/NJE service is a new service established in FY1989 that extends the previous Peer-to-Peer File Transfer Network Connection services. In addition to the monthly user charge, users will also incur file transfer charges of $0.15 per thousand card images (see "Peripheral, Job, and Network Services" in this rate sheet).

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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

OLUME 21 **NUMBER 4** **APRIL 1990**

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PPENDIX

Computing Center Class

DEPOSITORY
MAY 7 1990
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory
Building 221
Argonne, Illinois 60439-4822
FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	**Phone**	**Electronic Mail Address**
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Computer Network	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Data Communications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	A159	2-7329	B32848 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.1, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

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COMPUTING COMMENTS

FDDI PROTOTYPE NETWORK OPERATIONAL

FDDI is a widely accepted standard for high-speed (100 Mbits/second) fiber-optic networks. Using FY1989 Support Development Funds (SDF), CTD investigated Fiber Distributed Data Interface (FDDI) and created a plan for installing it at the Laboratory. In late February 1990, Computing and Telecommunications (CTD) finished installing a prototype FDDI network across the Laboratory. This installation was the culmination of extensive CTD effort to investigate FDDI and its applicability to the Argonne computing environment. CTD believes that increased use of FDDI is needed to better accommodate applications such as high-sped host-to-host file transfer, distributed network file systems, scientific visualization, and distributed processing that require faster network transmission speeds than is commonly available today.

As part of its investigation, CTD, together with Environmental Assessment and Information Sciences (EID), and Mathematics and Computer Science (MCS) divisions arranged to install a prototype FDDI network between Buildings 221 and 362. The initial application uses FDDI to link EID users on a Local Area Network (LAN) in Building 362 with a LAN in Building 221. With the prototype FDDI network, transmission between local area networks (LANs) in separate buildings across the laboratory appears essentially as fast as transmissions on the same physical cable.

The prototype network installation involved running fiber-optic cable among Buildings 221, 308, and 362, connecting FDDI/Ethernet bridges to the cable, and connecting a Building 362 Ethernet network to the CTD backbone network through these bridges. As a cost-saving measure, CTD was able to install the cable available ANL spare conduit previously installed with the Private Branch Exchange (PBX). The buildings involved in the prototype network were chosen because this cable plant could be easily expanded to serve as a backbone for the rest of the Laboratory.

The installation and testing of the fiber-optic/FDDI network has provided valuable experience that will be useful immediately in specifying a Laboratory-wide fiber-optic cable network. In addition to running FDDI over the fiber-optic cable, CTD also demonstrated the transmission of video signals over fiber-optic cable. We are evaluating methods of providing a Laboratory-wide video distribution system over the proposed Laboratory-wide fiber-optic cable network.

CTD is submitting a General Physical Plan Proposal (GPP) to expand this fiber-optic cable network throughout the most of the Argonne East site. Computing managers will review this plan based on the available conduit layout and will make sure that all key buildings are included.

CTD has obtained FY1990 SDF and General Purpose Equipment (GPE) funds to implement a direct host connection to the FDDI network. A direct FDDI connection will allow powerful machines to exercise the full FDDI bandwidth. At this time, we evaluating FDDI/Cray interfaces, workstation FDDI interfaces, and FDDI/Ethernet routers.

If you have computing applications that could benefit from either the current prototype FDDI network or its planned future expansion, contact Tim Kuhfuss at extension 2-4360.

MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASS

The Mathematics and Computer Science Division is offering a three-day class (9:00 a.m. to 4:30 p.m., on Wednesday, Thursday, and Friday, June 13-15, 1990) on how to write programs for the parallel computer systems in the Argonne Advanced Computing Research Facility (ACRF).

The class will cover the following topics: (1) parallelizing compilers, (2) using packages for portable parallel programming (including the Monitor package and the Schedule package), (3) programming the TC2000 (Butterfly II), (4) programming the Distributed Array Processor (DAP), and (5) programming the Connection Machine-2. On the third day, a portion of class time will be spent on each attendee's project. The class will include hands-on experience in writing and running programs on each machine. Participants will become familiar with the ACRF environment. Some knowledge of Unix and Fortran is necessary. To become familiar with Unix, refer to *A Practical Guide to UNIX System V* (0-8053-0243-3), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address huml@mcs.anl.gov. There is a $25.00 charge per person for universities, federal laboratories, and other government organizations and a $100 charge for commercial organizations.

COMPUTING CLASS SCHEDULED FOR MAY 1990

During May 1990, CTD will offer one class. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Cray X-MP Architecture and Vectorization Techniques (two 3-hour sessions) is for users who want to optimize their Fortran program to take full advantage of the Cray X-MP/14 high performance computer. Topics include Cray architecture, vectorization, optimization, and code examples.

CMS NEWS

CTD CONSIDERS FREEZE OF TELLAGRAF AND DISSPLA IN CMS

CTD is considering freezing the CMS versions of Cuechart, Tellagraf, and Disspla products at the following levels: Cuechart 2.1, Tellagraf 6.1, and Disspla 11.0. Disspla 11.0 is currently available for testing, and will be installed for production in the near future. However, we will continue to upgrade and maintain the VAX/VMS versions of these products and the UNICOS Disspla product.

Recent personnel changes and trends toward Unix require CTD to reassess how its effort is allocated. In the future, we may consider removing these products from CMS. Users who believe that they will be adversely affected by this proposed direction should contact the User Services consultants at extension 2-5405.

CRAY NEWS

CTD CONSIDERS REPLACING VAX/VMS SUPERCOMPUTER GATEWAY STATION

The VAX/VMS supercomputer gateway station is a communications link between Argonne's Cray X-MP/14 and the central VAX cluster. The station software runs on a VAX 8250 computer (cluster node ANLVG). The station gives users both batch and interactive access to UNICOS on the Cray through the VAX 8250 computer. Cray batch and interactive users can also transfer files to and from the central VAX cluster as well as distributed VAXes at Argonne via the Laboratory-wide DECnet.

The Laboratory's purchase of a site license for Multinet allows VAX users on the Laboratory-wide Ethernet to access the Cray and other Unix systems easily by using Transmission Control Protocol/Internet Protocol (TCP/IP) utilities (**telnet**, **ftp**, **rlogin**, and **rshell**). VAX users no longer need to login to either ANLCV1 or ANLVG either to submit their UNICOS jobs or to login interactively on the Cray. Therefore, CTD is considering removing the Cray VAX/VMS station software from the central VAX cluster.

CTD will contact current users of the VAX/VMS station to survey their current use of station features and their use of central VAX cluster disks to store Cray files. We believe that many of the station functions can be replaced with TCP/IP utilities and Cray scripts that provide functions similar to those provided by the UNICOS **fetch** and **dispose** commands. We are also investigating the possibility of supplying other tools. Any VAX-based tools would be available to divisional VAX users.

An analysis of file transfer activity between the VAX/VMS station and the Cray indicates that most of the transfers are one-way, VAX to Cray. CTD is investigating economical alternatives for Cray storage to avoid unnecessary file transfer from the VAX to the Cray.

Retiring the VAX/VMS station would allow the Laboratory to save substantial software maintenance costs. Since VAX users will be able to access the Cray directly from their divisional VAXes, station-related central VAX cluster resource usage could be redistributed to the divisional VAXes. In addition, CTD could redirect its station support effort to other areas.

In FY1990, CTD plans to connect the Cray directly to the Laboratory Fiber Distributed Data Interface (FDDI) fiber-optic network. A Cray low-speed channel port is necessary for this connection. Currently, all of the four existing Cray low-speed channel ports are in use. Replacement of the VAX/VMS station will allow the low-speed channel port presently used by the station to be used for the FDDI link, avoiding the $25,000 purchase of a new low-speed channel. In addition, the FDDI interface will improve TCP/IP access to the Cray.

CTD is planning a pilot test of replacement tools as well as a transition period to allow users ample time to convert to the tools. CTD solicits input for users of the VAX/VMS station about its continued use. If you have comments or questions about this project or you would like to participate in this pilot test, contact Tom Canfield at extension 2-4588.

CRAY BATCH USAGE INCREASES

During February 1990, batch usage on the Cray UNICOS system has reached saturation. We have seen an increase in usage from divisions that had not used the Cray system this fiscal year.

Cray batch scheduling is based on a priority bidding system where a "u" job can cost as much as 6.67 times a "y" job. We now see hour long "u" jobs run during the day. We also see "y" jobs not being run for up to a week. Until February 1990, most work was run at "y" even during the day, and little or no work was left by morning.

However, throughout March, we have noticed that an increasing share of the workload is being shifted to the "u" and "w" jobs, where formerly, only "x" and "y" jobs exsisted. This competition for Cray resources is believed to be largely due to the impact of "floors" and our users realization that the longer they wait to use their allocation of resources, the less likely we will have the capacity available to meet their needs.

As the end of the fiscal year approaches, we expect the situation to worsen. If you have been unsatisfied with the turnaround times for jobs in the "x" and "y" queues, review your division's floor allocation and consider using the "u" and "w" queues during the day. Do not wait until the end of the year to use the Cray; competition for resources has reached the point where we cannot guarantee completion of your work.

CRAY TO USE DOMAIN NAME SYSTEM

On Tuesday, April 17, 1990, CTD plans to implement the Domain Name System on the Cray X/MP-14 to translate TCP/IP nodenames to IP addresses. The Domain Name System will replace the static table look-up method presently used, making name and number changes available in a more timely manner. CTD recommends that all hosts running TCP/IP use the Domain Name System to elimate the need to maintain up-to-date local host tables. This change will require users of the **rlogin**, **rsh**, **rexec**, **rcp**, **mailx**, **telnet**, and **ftp** commands to use fully qualified domain style names at all times. Beginning April, 17, 1990, users of .rhost files on the Cray must use fully qualified domain style names. For example, to use **ftp** from the Cray to the VAX 8700 computer, enter:

```
ftp anlcv1.ctd.anl.gov
```

Beginning April 17, 1990, the Cray will no longer recognize host nicknames and aliases.

GRAPHICS NEWS

CA-DISSPLA 11.0 AVAILABLE FOR TESTING IN CMS AND MVS

CA-Disspla Version 11.0 from Computer Associates is now available for testing in CMS and MVS. Features of CA-Disspla 11.0 include:

- Object rendering: you can now request complex geometric objects in wire frame, as well as fully shaded models.
- Processing of raster images: Disspla can read any digitally recorded raster image stored as a collection of pixels.
- Two-dimensional color shaded contours.
- Three dimensional and four-dimensional shaded surfaces.
- Enhanced control of contour levels.
- Greek and Hebrew shaded fonts.

- Run-time device selection of dynamically loaded device drivers.

For explicit usage of CA-Disspla 11.0 in CMS and MVS, refer to the addendum to the *ANL Supplement to the CA-Disspla User's Manual* (ANL/TM 467). Both ANL/TM 467 and its new addendum, along with the *CA-Disspla Users Manual Version 11*, Volume 1 and 2 (RG 99 DS 1101S), are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

MANAGEMENT INFORMATION SYSTEMS

NEW BUDGET SYSTEM PLANNED

In February 1990, the Integrated Financial System (IFS) Project Manager, Beverly Quinn of the Office of the Chief Financial Officer (OCF), presented to the Administrative Data Processing Oversight (ADPO) Committee the new proposals for updating the budget systems. In summary, the proposals call for the introduction of scientific paid absence reporting in October 1990, with the system development taking place during FY1990 and implementation of the new budget systems to begin in FY1991 (with completion by FY1992). System development for the new budget systems will take place during both FY1990 and FY1991.

Paid Absence Reporting. By FY1991, Argonne National Laboratory must account for the costs of scientific paid absences with indirect methods. The Department of Energy mandated this change over two years ago. Currently, such absences are charged either to the scientific program employing the person or to divisional overhead. When the scientific manager uses the indirect methods for paid absence distribution, the charging method should be more equitable and consistent. In addition, many scientific managers believe the proposed changes will result in more properly charged programs.

This change will pervade numerous aspects of IFS, the budget systems, file layouts, rate development, and over 70 financial reports. Moreover, the planning processes for scientific investigators and administrators will be affected. The development tasks for this project include the installation of new software releases for the General Ledger package and Information Expert tools which were installed as part of the IFS project. In the fourth quarter of FY1990, user training will begin regarding paid absence distribution.

New Budget System. In discussions with the IFS users, it appears that the requirements for a budget system lie primarily in the process of modeling a budget and improvements to the preliminary steps, such as funds allocation and control. For scientific users, the report content is generally acceptable, although reports could be reformatted to permit expansion of future budget categories. Non-direct users require both modeling and reporting assistance, particularly to meet the information needs of upper management. The Budget Office has numerous requirements to automate and expedite their work while providing better control.

Among the features already identified for a new budget system are simplified handling of unfunded accounts, multiple tax rates for all tax categories, gross budgeting, full-screen front-end entry of data, improved handling in Field Work Proposal (FWP) preparation, automation of exemption handling, graphics, automated assistance in rate calculation, downloading of payroll totals for effort planning, and required and optional levels of annual and monthly planning in one unit.

The plan for FY1990 calls for the Project Team to complete the functional design of the new budget system and to obtain concurrence from the user community. The Project Team will synchronize the budget files with the IFS and the data repository for finalize the budget data. In FY1991, full development will begin. In the beginning of FY1992, the projects should be completed.

Progress on these projects will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

INTEGRATED FINANCIAL SYSTEM UPDATE

In March 1990, the IFS Project Team completed the first version of the User Report Maintenance System and presented it to a select group of IFS users. The system allows users to maintain their own or others' report selection criteria, (including adding new report requests, changing existing selection criteria, deleting report requests, cloning new reports from existing reports, changing report output characteristics, and submitting reruns and ad hoc runs of reports). Duane Bradley (Plant Facilities and Services), Sandy Davis (Environmental Assessment and Information Services), Candy Doyle (Engineering Research), Sue Long (Support Services Division), Judy Popik (Chemical Technology), Bev Quinn (Office of the Chief Financial Officer), Marge Ravasz (Chemical Technology), Vanessa Arzate (Chemical Technology), and June Wulfert (Special Projects Office) comprised the test group. They will test the system and make suggestions for enhancements.

Also in March 1990, the Project Team began to develop the IFS travel reports. These reports will show the trips taken by Laboratory employees for their own cost centers and for other cost centers. The travel reports will be available for the March 1990 month-end reporting cycle. The Project Team has added weekly service center reports to the normal production schedule and has modified the service center reports to exclude closed accounts and to include direct charge accounts.

Progress on all phases of the IFS project will be reported at the Financial Applications to Effect Telesis (FACET) meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

ADMINISTRATIVE LONG-RANGE PLAN INPUT REQUESTED

Each year, CTD publishes *A Plan for Administrative Computing at ANL.* This *Plan* describes administrative computing systems planned or in use throughout the Laboratory. Management Information Systems (MIS) develops this document with the users of the administrative systems and the Administrative Data Processing Oversight (ADPO) Committee. To make the *Plan* as comprehensive and relevant as possible, MIS collects information about all administrative computing at the Laboratory. The FY1991--FY1993 *Plan* will mark the tenth consecutive year MIS has issued this comprehensive long-range planning document.

James O'Kelley, Chairman of ADPO, requests all division directors, department heads, and project managers to contribute to the *Plan.* Information in the *Plan* about administrative systems includes:

- Description of all existing administrative computing systems at the Laboratory (including those on personal computer systems and minicomputers).
- Plans for administrative system development and system enhancements.
- Descriptions of computer hardware used or planned for each administrative system: personal computers, minicomputers, central IBM computers, and VAX computers.
- Requirements for obtaining data electronically from an official administrative system to be used in your systems.
- Division plans for developing divisional administrative systems.

The ADPO Committee will begin to review ADPO funding proposals for FY1991 through FY1993 in May 1990. For assistance in developing your administrative computing plans, contact MIS at extension 2-7156.

VAX/VMS NEWS

NEW VERSION OF DISSPLA 11.0 BECOMES PRODUCTION ON THE VAX 8700 COMPUTER

Disspla is a graphics library for programming applications that represent data graphically. You can use Disspla to generate two-dimensional or three-dimensional graphs that include shaded fonts, mapping, contours, object rendering, and many other features on many popular graphics devices.

On Monday, April 9, 1990, CTD will install Disspla 11.0 (Genlevel 8907) as the production version of Disspla on ANLCV1. Since February 1990, Disspla 11.0 (Genlevel 8907) has been available for testing. It includes some fixes and provides dynamically loaded device drivers (DLDDs). DLDDs allow you to select graphics device drivers at runtime instead of linking them into your executable image. For information on this Disspla version, see "New Version of Disspla Available for Testing" in the February 1990 *Newsletter.*

Beginning on April 9 1990, the Disspla 11.0 (Genlevel 8907) library will automatically be available to you when you log into ANLCV1. To use Disspla 11.0 (Genlevel 8907) prior to April 9, 1990, enter the following DCL command:

```
$ SETUP DISSPLA /V=TEST
```

If you have questions about Disspla, contact the User Services consultants at extension 2-5405.

PLANS TO UPGRADE TO VMS 5.3

CTD plans to upgrade the Argonne central VAX cluster operating system to VMS 5.3 on Monday, April 23, 1990. VMS 5.3 includes many changes relative to earlier versions that you may find useful for your work. Some of the important new user features include:

- Enhanced Extensible VAX Editor (EVE).
- TCP/IP transport for the X Window System.
- X Window System enhancements.

After the installation, CTD can begin to interface the Multinet TCP/IP software and the X Window System. This interface will enable users who have workstations with TCP/IP networking and the X Window System to create sessions with the central VAX cluster. Disspla users will also be able to create images for X Window workstations.

To view a detailed list of the new features in VMS 5.3, enter on the central VAX cluster:

```
HELP V53
```

USING SIGNATURE FILES IN VAX MAIL

This article describes how you can define a single keystroke for your VMS Mail Utility editor that will insert your signature file into the body of your electronic message.

Although the VMS Mail Utility provides you with an optional "personal name string" that is inserted on the "from" line of your mail messages, the string is often not long enough to contain the information you want to convey. Moreover, parts of this field may be lost if the mail message passes through mail gateways to other networks where the personal name string is not recognized in the local mail protocol. A common solution is to add a signature section to the mail message. The signature section contains all of the information you need to convey to your correspondents.

First, you need to create your signature file containing the text you will insert in your mail. Then, define a single keystroke to bring the file into your message by inserting the command

```
DEFINE KEY=keyname INCLUDE filespec
```

into your Text Processing Utility (TPU) editor initialization file (see "Using EDT Emulation in the EVE Editor" in the August 1989 *Newsletter*). The following example defines a signature file:

```
DEFINE KEY=F20 INCLUDE SYS$LOGIN:PLAN.TXT
```

where "F20" is the keyname and the file "PLAN.TXT" is located in the directory SYS$LOGIN. Now, when you compose your mail message, you need only to position the cursor at the left margin of the line where you want the signature file inserted and to strike the key you defined. The editor brings the text into the editing session, and you may continue editing your mail message and send it when you are done.

Note that if you name your signature file PLAN.TXT and place it in your top-level directory, SYS$LOGIN, it will also be used by the TCP/IP `FINGER` command to provide information about your account. On the VAX 8700 computer, enter:

```
$ FINGER username
```

If there is a `PLAN.TXT` file it will be displayed at your terminal. For example, try entering

```
$ FINGER SYSTEM
```

to see the contents of the CTD system signature file.

HOW TO USE TEMPORARY DISK SPACE ON THE VAX CLUSTER

Currently, CTD provides approximately 1.7 gigabytes of temporary file space on the Argonne central VAX cluster. Temporary file space is sometimes used by VAX and you can use such space directly either through VAX commands or from your programs. Temporary file space is an important and valuable resource in a computer system, especially for programs that do large-scale calculations. This article describes the resource and the current policy for managing temporary disk space.

All VAX/VMS computer accounts use several logical names that define the account environment. One of these, SYS$SCRATCH, if not changed by the VAX administrators, points to the top-level directory of the account. In the central VAX cluster we have redefined SYS$SCRATCH to point to a separate disk volume, different from the disk on which your account's permanent file directory system is located. When we authorized your account, we created a top-level directory on the alternate volume, and we authorized disk quotas both for your permanent file volume and for your temporary file volume.

The difference between permanent files and temporary files is the length of time they may be retained. Permanent files are retained until you decide to delete (or purge) them. That is, you manage your own permanent files. CTD manages the files according to the following policy: *user files located on the temporary file volume are deleted following the seventh day after which they were last modified.* This policy is designed to provide a disk volume that always has sufficient free space to allocate temporary files for jobs currently executing. The seven-day time limit is designed to allow sequences of jobs or long-running jobs to maintain continuity where large datasets are necessary and the permanent file allocation is insufficient. The use of the last modification date rather than the creation date extends the effective window of availability to provide for files that may have been written over several hours or even days by a long running program. Although CTD manages the space by running procedures that implement this policy, we prefer that users help us to keep the temporary file space resource available by deleting all files when they are no longer needed. Note that disk space on your temporary volume is charged at the same rate as your permanent volume so that deleting unnecessary files yourself will decrease your computing costs too.

Use temporary file space simply by creating files with the logical name SYS$SCRATCH prepended to your file name:

```
SYS$SCRATCH:MYFILE.DAT
```

For example, in a Fortran program you name the temporary file on Fortran unit one in an OPEN statement

```
OPEN(1,FILE='SYS$SCRATCH:MYFILE.DAT',STATUS='NEW')
```

and then WRITE and READ the file as you would normally do. The new file will be opened and written in the directory named by the logical name SYS$SCRATCH. If you wish to delete the file from your program, you can use the delete option on the optional CLOSE statement:

```
CLOSE(1,DISPOSE='DELETE')
```

If you want to retain the file after the job completes, omit the dispose option. For further information on Fortran I/O statements, enter:

```
HELP FORTRAN STATEMENTS INPUT_OUTPUT
```

You can display the amount of disk space available to you on the temporary volume by entering the VMS SHOW QUOTA command:

```
$ SHOW QUOTA /DISK=SYS$SCRATCH
```

The system will display your space quota for the temporary space volume, the amount of space that is used, and the quota overdraft. To display the quota and available space on the volume holding your permanent files, enter:

```
$ SHOW QUOTA /DISK=SYS$LOGIN_DEVICE
```

For further information on the `SHOW QUOTA` command, enter:

```
HELP SHOW QUOTA
```

NEW FICHE AND IBM 3800 PRINTER QUEUES ON THE VAX CLUSTER

CTD has made two new queues available on the central VAX cluster that enable you to print files to the IBM 3800 laser printer and the microfiche printer located in Building 221.

To print files on the microfiche printer, enter:

```
$ PRINT filespec /Q=FICHE
```

To print files on the IBM 3800 laser printer, enter

```
$ PRINT filespec /Q=3800 [/SETUP=LINE]
```

and include the setup option if you want the "lined" background.

Note that if you equate a print queue to the default print queue (i.e., SYS$PRINT) with the

`DEFINE` command, you may also eliminate the `/Q=` option from your print commands. Moreover, you can also print from VAX/VMS applications, such as MAIL or the DECalc Plus spreadsheet, that have print options that access the default printer. To define your default printer, enter:

```
$ DEFINE SYS$PRINT queue-name
```

If you have any questions about the new queues, contact Rich Raffenetti at extension 2-8497.

SITE LICENSE PURCHASED FOR VAX/VMS ONLINE CALCULATOR

CTD has coordinated the purchase of a site license for the Online Calculator that has been available for over a year on the Argonne central VAX 8700 computer. The calculator is a handy, easy-to-use, full screen application that you can execute at the VMS command prompt by entering:

```
DSCALC
```

To get more information, enter:

```
HELP DSCALC
```

The site license covers all VAX/VMS computers at the Illinois site but not those at Argonne West. If you manage a VAX/VMS system at Argonne, you can obtain the software by calling Barry Miller at extension 2-6808. CTD will assign your central VAX cluster account an identifier that gives you access to a file containing the calculator software. In addition, we will send you a copy of the installation instructions.

The license we obtained is for the latest version of the calculator, which includes some valuable improvements for programmers. You may now enter data in hexadecimal or octal as well as decimal. The number of nested parentheses is increased and the number of memory cells that you can use to save intermediate results is also larger. The Online Calculator is available from all members of the Argonne central VAX cluster.

BITS & BYTES

NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 3,040 computers at over 1,080 sites. Since the last *Newsletter* article in February 1990, the following universities and organizations have joined BITnet:

Athabasca University
Bridgewater College--Virginia
Chinese University--Hong Kong
City Polytechnic--Hong Kong
Eastern Washington University--Cheney, Washington
Florida Atlantic University--Boca Raton
Hacettepe University--Ankara
Hong Kong Baptist College
Hong Kong Polytechnic
Hong Kong University of Science and Technology
IBM Scientific Center--Bergen
INFN--Perugia
Institute of Physical and Chemical Research--Saitama, Japan
Institute of Statistics and Mathematics--Tokyo
Interdepartmental Service Center for Data Elaboration--Naples
Kanazawa University
National School of Statistics and Economic Administration--Paris
National University--La Plata, Argentina
Northern Kentucky University
Okayama University--Japan
Regional Institute of Information Sciences and Telecommunications--Tunis
Plasma Physics Institute--Milan
Ryukoko University
Soka University--Tokyo
Sogang University--Seoul
Tokyo Denki University
United Nations Global Resource Information Database--Geneva
University of Belgrade
University of Paris 13
Whitman College--Walla Walla

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS, the VAX 8700, or MVS Wylbur):

```
HELP BITNET NODES
```

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new CTD documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing and Telecommunications Documents

Recommended Documentation for Computer Users at ANL (ANL/TM 379 REVISION 2) helps Argonne computer users select documentation that will best fit their individual needs. This second revision reflects the recent upgrades and other changes in services. Chapter 1 explains how to use this document to select manuals and to obtain them from the CTD Document Distribution Counter. Chapter 2 provides a rationale for the categories in which the publications are listed in Chapter 3. Chapter 3 contains lists of publications organized by topic, with annotations indicating the skill level. Chapter 4 contains an abstract for each publication, all arranged alphabetically. Chapter 5 describes additional publications containing bibliographies and master indexes that the user may find useful. This document replaces the October 1988 edition.

A March addendum to the *ANL Supplement to the CA-Disspla User's Manual* (ANL/TM 467) documents local changes and installation-dependent options to Computer Associates (CA) Disspla. While CA-Disspla Version 11.0 had been available for some time on the VAX 8700 and is documented within the *Supplement,* it became available only recently on the IBM MVS and IBM CMS systems.

Although CA-Disspla 11.0 is not yet available for the Cray X-MP/14, this addendum includes a section on the X Window System (also called "X"), a network transparent window system developed by the Massachusetts Institute of Technology that is on several computing and graphics machines (e.g., Sun Workstations and IBM Personal Computers). By calling X from a Disspla program running on the Cray, you can review the graphics output interactively at your workstation.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD MARCH 6, 1990

Dotti Bingaman (Environmental Assessment and Information Sciences) opened the meeting at 3:05 p.m.

Computer Usage. Mike Boxberger (Computing and Telecommunications) reported on the current computer usage figures and compared them to past levels. In most recent weeks, the Input/output and peripherals, IBM batch, and the Cray charges each bring in about 25 percent of the CTD income. This is a big increase in the Cray share. Currently, the Cray is operating at almost maximum capacity, with both the number of paying customers and the average job cost multiplier running higher than in the past. The VAX 8700 computer is also running at significantly higher usage than a year ago. Because of the usage, especially of the Cray, users will find the need to use higher levels of job class to get the kind of turnaround experienced in the past. Because of the increased income in recent weeks, the first Floors assessment may be slightly lower than originally predicted, based on past computing history.

Status of Wylbur. Doug Engert (Computing and Telecommunications) gave a quick rundown on the new features available in Wylbur 8.1. Currently, CTD does not plan to bring up this new version because of the work necessary to modify the code to work effectively within the ANL computing system and the absence of any new features that dramatically increase user productivity. Some of the new features include auto-volume selection, labels in execs, larger active file capabilities, and the ability to "list offline" 232 character lines. In addition, the REFERENCE option for many commands and the ability to RUN from external files not in the active region are available. Contact Doug Engert at extension 2-5444 for detailed information on the new features or if you have a specific need for certain features.

ANL Computer Network Security. Jean Troyer (Computing and Telecommunications) reported on the recent Internet break-in attempts and warnings. At the end of February 1990, there was unusual activity in some little used accounts on some MCS systems. It was determined that access had been obtained to certain accounts through the use of **.rhosts** files. Non-ANL systems were attacked and root privileges obtained. The **.rhosts** files of some users on these machines pointed back to the MCS computers, and access was gained to user directories. Password files and dictionaries were then downloaded and encrypted, and searches for matches with the encrypted password files could then take place. Any match would then allow access to that user account. This is one reason why it is strongly suggested that users not use passwords that occur in dictionaries. MCS computers were the only ones penetrated, and only certain user accounts were penetrated. Root access was not gained. Because this is the second time **.rhosts** files have been used to gain access to the MCS computers, a decision has been made to not allow .rhosts access to the computers.

The Cray uses **.rhosts** files to allow access without requiring passwords. To minimize the vulnerability of the Cray and local systems, it was decided to restrict .rhosts connection to the Cray to onsite systems only. It is highly recommended that other onsite systems adopt this approach and not allow **.rhosts** connection by offsite system.

Jean then continued by discussing some general points on the vulnerability of LANs. When users send packets over a LAN, they are sent to all stations on the LAN. Although packets are to be read only by the station to which they are addressed, changes can be made to a stations coding to allow it to read all packets. In this way, sensitive data, user IDs, passwords, etc., can be compromised. When people are considering the use of LANs for sensitive data, these aspects of the LANs should be addressed.

The PBX and Ethernet in the computer room of Building 221 are secure for sensitive data. The PBX is a bridged network. Direct connection is made between two systems and security is not compromised. In the future, the FDDI is not a bridged system, so it will possess the same vulnerability as the LANs. Possible enhancements to provide protection include data encryption or the use of one-time passwords. These enhancements will be studied further to determine the best ways to provide the necessary security with a minimal impact on the users.

User's View of Multinet. Dave Leibfritz (Computing and Telecommunications) discussed some of the ramifications of using Multinet from the VAX 8700 computer. In general, the logon prompting is not done unless the user issues the /PROMPT option with the **FTP** command. The ls command does not always append a carriage return to the end of each line, so it is recommended that the **dir** command be used instead. Since tn3270 is not a function of Multinet, but of Telnet, users may need to set up their MAP3270 files to make their terminals respond as required. There has not been a detailed study to determine the relative performance of Multinet, but one user, who has used it for large file transfers, reported that there was a significant performance increase over the Wollongong TCP/IP software.

The CUG meeting adjourned at 3:53 p.m.

Ken Miles, CUG Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD MARCH 14, 1990

Bob Kampwirth (Materials Sciences) opened the meeting at 11:00 a.m.

There is a WDEF virus outbreak onsite. Some difficulties have been reported with GateKeeper Aid, which will automatically detect both forms of the virus. Disinfectant 1.6 also detects both forms, but must be run manually.

The March Programmer's Special Interest Group was well attended, indicating increasing interest in programming on the Apple Macintosh. Anyone interested in learning how to program on the Apple Macintosh should call John Mattson (Material Science Division).

Dotti Bingaman (Environmental Assessment and Information Sciences) reported that there will be a two-afternoon workshop on Ethernet onsite on April 24 and 25, 1990 in the Building 205 conference room. Topics include hardware, software, application performance on LANs, security, etc. Paul Steimle (Environmental Assessment and Information Sciences) will be coordinating the AppleTalk Section of the workshop.

Some of Apple's new releases include the Macintosh IIfx; 8 bit (with video output), 24 bit, and 24 bit with QuickDraw accelerator video cards; and A/UX 2.0. X Window for the Apple Macintosh is still in beta test.

Ralph Leonard (Chemical Technology) presented Microsoft Excel 2.2. While he believes Excel, Informix Wingz, and Ashton-Tate Full Impact are all good, solid spreadsheet products, he finds all the features he needs in Excel and will probably stick with it. It runs in 1 MB of RAM, and you can exchange files between the Apple Macintosh and IBM versions. You can create a startup document to defaults and define macros for the current session. You can name and reference rows and columns with the same name. Graphics are separate from spreadsheet but will recalculate automatically. You can run an "info" window showing precedents and dependents -- handy for debugging. You can place variables in text strings to print out current values.

Stephanie Shishko, Chris Soderquist, and Greg Mullins (Systat) presented Systat 5.0, a statistics package that provides an integrated analysis environment designed to help users discern relationships between raw data and graphics. This update of Version 3.2 works on a regular Apple Macintosh interface; however, a command log is also automatically saved. It ships from Systat with both 68000 and 68030 versions and requires 4 MB RAM. It has extensive graphing capabilities ranging standards graphs, plots, and charts, to dimensional maps, contour plots, and Voronoi tesselations. Also included is a "spin" feature that will rotate a graphic around a specified axis.

The April 1990 meeting will include a presentation by Adobe Systems on Illustrator, PhotoShop, Type Manager, and TrueForm. Affordable PostScript alternatives and a comparison of type formats are also scheduled for discussion.

The Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

Lee Wagar, Acting Macintosh Users Group Secretary.

WORKLOAD STATISTICS (JANUARY 31, 1990 THROUGH FEBRUARY 27, 1990)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,244	1,246	477
Wylbur	1,669	1,667	3
MVS TSO	54	54	12
CICS	1,669	1,667	93
MVS Batch	2,130	2,138	652
VAX/VMS	495	523	284
Cray	417	434	137
All Systems	2,130	2,138	973

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION	CPU
	PRIME	NIGHT	WEEKEND	TOTAL	TIME (HRS)	TIME (HRS)
INTERACTIVE						
CMS	11,405	2,524	1,769	15,689	35,070.0	96.13
Wylbur	8,797	426	444	9,667	8076.5	8.99
MVS TSO	213	1	0	214	131.4	0.56
CICS	52	34	21	107	0.0	4.64
VAX/VMS	13,505	1428	1,614	16,547	16,291.8	313.02
Cray	397	32	42	471	1,135.5	7.62
IBM BATCH						
Class U	9,825	1,865	1,041	12,731	n.a.	40.99
Class W	18,128	1,799	1,263	21,170	n.a.	140.96
Class X	2	1,783	92	1,877	n.a.	103.77
Class Y	0	0	281	281	n.a.	25.42
Nonmain	17,804	2,221	1,446	21,471	n.a.	0.00
Total	45,759	7,648	4,123	57,530	n.a.	311.14
CRAY BATCH						
u	397	32	42	471	n.a.	18.34
w	3,081	342	281	3,704	n.a.	139.15
x	783	231	211	1,225	n.a.	118.82
y	3,150	606	603	4,359	n.a.	210.11
Total	7,411	1,211	1,137	9,762	n.a.	486.42
VMS BATCH						
W_BATCH	947	686	385	2,018	n.a.	34.31
X_BATCH	18	23	4	45	n.a.	97.22
Y_BATCH	2	11	12	25	n.a.	210.11
Total	967	720	401	2,088	n.a.	341.64

INPUT/OUTPUT

Lines Printed	
Local	60,482,194
Remote	48,224,290
Fiche	31,926,748
Cards Punched-Local Only	8,284
Tape Mounts	7,395
Microfiche Developed	3,738
Microfiche Frames Developed	674,460

GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	174	n.a.
Matrix 35mm Color	41	140
Matrix-8 x 10	13	13
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	37	349
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	0	0
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	24,517
New Tapes Saved	357
Tapes Released	852
Datasets Exported to Tape	2,003
Datasets Imported from Tape	577

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (JANUARY 31 THROUGH FEBRUARY 27, 1990)

	Monthly Totals	*Scheduled*			*Unscheduled*		
		Hardware	*Software*	*Other*	*Hardware*	*Software*	*Other*
			CMS				
All Shifts							
Interruptions	8.00	2.00	5.00		1.00		
Hrs Unavailable	7.51	2.70	4.33		0.48		
MTF/Unscheduled	664.48				664.48		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00				1.00		
Hrs Unavailable	0.48				0.48		
MTF/Unscheduled	239.51				239.51		
			WYLBUR				
All Shifts							
Interruptions	21.00	4.00	10.00		2.00	5.00	
Hrs Unavailable	28.21	8.45	12.90		3.15	3.71	
MTF/Unscheduled	91.96				321.89	128.75	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	7.00				2.00	5.00	
Hrs Unavailable	6.86				3.15	3.71	
MTF/Unscheduled	33.30				116.56	46.62	
			MVS TSO				
All Shifts							
Interruptions	19.00	4.00	10.00		1.00	4.00	
Hrs Unavailable	25.21	8.45	12.90		0.65	3.31	
MTF/Unscheduled	129.35				646.78	161.69	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	5.00				1.00	4.00	
Hrs Unavailable	3.86				0.65	3.21	
MTF/Unscheduled	47.22				236.13	59.03	
			JES3				
All Shifts							
Interruptions	21.00	4.00	10.00		2.00	5.00	
Hrs Unavailable	25.66	8.45	12.83		0.81	3.56	
MTF/Unscheduled	92.33				323.16	129.26	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	6.00				0.81	2.93	
Hrs Unavailable	3.75				0.81	2.93	
MTF/Unscheduled	39.37				118.12	59.06	
			CICS				
All Shifts							
Interruptions	3.00				1.00	2.00	
Hrs Unavailable	2.15				.68	1.46	
MTF/Unscheduled	223.28				669.85	334.92	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	3.00				1.00	2.00	
Hrs Unavailable	2.15				237.85	118.92	
MTF/Unscheduled	79.28				237.85	118.92	
			VAX/VMS (VAX 8700)				
All Shifts							
Interruptions	11.00		2.00		3.00	6.00	
Hrs Unavailable	7.11		3.36		1.76	1.98	
MTF/Unscheduled	73.87				221.62	110.81	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	6.00				3.00	3.00	
Hrs Unavailable	2.66				1.76	0.90	
MTF/Unscheduled	39.55				79.11	79.11	
			CRAY				
All Shifts							
Interruptions	11.00	5.00	4.00		1.00	1.00	
Hrs Unavailable	47.45	15.58	5.63		25.41	.81	
MTF/Unscheduled	312.27				624.55	624.55	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00		1.00			1.00	
Hrs Unavailable	2.15		1.33		.81		
MTF/Unscheduled	237.85					237.85	

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (JANUARY 31 THROUGH FEBRUARY 27, 1990)

CC	**CCNAME**	**IBM**	**VAX**	**CRAY**	**NETWORK**	**PERIPHRL**	**CCTOTAL**

ADVANCED PHOTON SOURCE

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHRL	CCTOTAL
130	ADVANCED PHOTON SOURCE DIV	$1,909	$86	$0	$553	$117	$2,666
272	ADVANCED PHOTON SOURCE	$45	$0	$3	$17	$100	$165
341	APS ACCELERATOR PHYSICS	$367	$3,716	$4,603	$387	$126	$9,198
345	APS VACUUM	$6	$2,930	$0	$69	$-243	$2,762
347	APS CONTROLS	$64	$2	$0	$24	$91	$181
348	APS MAGNETS	$75	$0	$0	$1	$1	$77
349	APS POWER SUPPLIES	$61	$0	$0	$5	$0	$66
350	APS DIVISION MANAGEMENT	$8	$0	$0	$0	$0	$8
351	APS INSERTION DEVICES	$53	$124	$0	$37	$11	$224
353	APS BEAM LINE INSTRUMENTATION	$5	$0	$0	$0	$0	$5
360	APS CONVENTIONAL FACILITIES	$465	$1	$0	$6	$81	$554
361	APS PROJECT DIRECTION	$11	$0	$0	$0	$0	$11
362	APS MANAGEMENT GENERAL	$15	$0	$0	$0	$0	$15
SUBTOTAL		$3,084	$6,858	$4,606	$1,099	$284	$15,931

ENERGY, ENVIROMMENTAL, AND BIOLOGICAL RESEARCH

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHRL	CCTOTAL
110	BIO & MED RES DIV	$2,020	$1,770	$236	$1,000	$765	$5,790
125	TECHNOLOGY TRANSFER CENTER	$147	$0	$0	$2	$46	$195
149	ENVIROMMENTAL RESEARCH DIV	$2,009	$345	$1,007	$812	$607	$4,781
155	ENERGY SYSTEMS DIVISION	$5,066	$498	$4,629	$1,128	$746	$12,066
165	ENV ASSESS & INFO SCI DIV	$16,745	$11,723	$1,284	$2,605	$3,771	$36,128
174	ENER/ENV/BIO PROG DIR	$14	$0	$0	$1	$0	$15
197	SPECIAL PROJECTS OFFICE	$259	$2	$0	$23	$51	$336
246	ES-NAT'L ENERGY SOFTWARE CTR	$130	$0	$0	$679	$422	$1,231
274	ENER/ENV/BIO RES PROG ADM	$91	$0	$0	$1	$75	$167
SUBTOTAL		$26,480	$14,339	$7,156	$6,251	$6,483	$60,709

ENGINEERING RESEARCH

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHRL	CCTOTAL
102	EBR-II PROJECT-ANL WEST	$2,439	$99	$692	$470	$83	$3,783
107	CHEMICAL TECHNOLOGY DIVISION	$591	$152	$0	$782	$407	$1,933
112	REACTOR ANAL & SAFETY	$16,572	$401	$5,688	$6,454	$-4,237	$24,879
114	MATLS & COMP TECH DIV	$4,198	$3,233	$396	$2,713	$1,525	$12,065
115	ENGINEERING PHYSICS DIVISION	$32,783	$5,732	$30,920	$8,595	$16,951	$94,981
117	APPLIED PHYSICS-ANL WEST	$2,276	$79	$10,237	$331	$287	$13,210
118	REACTOR EXP & EXAM DIV	$2,414	$409	$3	$131	$221	$3,178
119	ANALYTICAL LABORATORY ANL-WES	$0	$0	$0	$0	$30	$30
171	ENGRG RES PROG DIR	$4	$0	$0	$0	$79	$83
211	ENGINEERING PHYSICS DIVISION	$108	$13	$0	$15	$2,823	$2,958
269	CHEM TECH DIV-ANALYTICAL CHEM	$46	$0	$0	$7	$51	$103
271	ENGRG RES PROG ADMIN	$105	$0	$0	$2	$165	$272
SUBTOTAL		$61,535	$10,119	$47,936	$19,501	$18,385	$157,475

PHYSICAL RESEARCH

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHRL	CCTOTAL
105	MATERIALS SCIENCE DIVISION	$902	$8,791	$39,327	$3,440	$681	$53,143
109	PHYSICS DIV	$2,331	$1,444	$1,334	$2,016	$394	$7,519
120	CHEMISTRY DIV	$1,448	$7,125	$17,522	$1,057	$668	$27,819
136	INT PULSE NEUT SOURCE PROG	$429	$1,161	$2,452	$613	$258	$4,913
137	HIGH ENERGY PHYSICS DIV	$1,934	$2,832	$7,953	$1,167	$1,093	$14,979
139	DIV OF EDUCATIONAL PROGRAMS	$2,302	$0	$0	$816	$148	$3,267
145	MATHAMATICS & COMPUTER SCI DI	$317	$32	$713	$2,168	$4,326	$7,557
146	CTD DIV - SCI APPL & RES	$60	$116	$219	$168	$-13,680	$-13,118
273	PHYSICAL RESEARCH PROGRAM ADM	$47	$0	$0	$23	$30	$100
SUBTOTAL		$9,769	$21,502	$69,520	$11,469	$-6,081	$106,179

EXTERNAL

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHRL	CCTOTAL
751	FERMI NATIONAL LABORATORY	$772	$0	$0	$460	$365	$1,598
752	NAVY	$11,466	$0	$0	$1,400	$5,500	$18,367
753	MORGANTOWN ENERGY TECH CENTER	$15	$0	$0	$650	$0	$665
754	DEPARTMENT OF ENERGY AT ANL	$4	$0	$0	$1	$0	$4
755	ROCKWELL INTERNATIONAL	$3	$0	$0	$0	$0	$3
756	LOS ALMOS	$23	$0	$0	$0	$0	$23
760	ABBOTT LABORATORIES	$12	$157	$1,355	$66	$0	$1,590
762	STATE UNIVERSITY OF NEW YORK	$8	$50	$5	$0	$99	$161
763	GENERAL ELECTRIC COMPANY	$0	$0	$0	$0	$0	$0
765	WESTINGHOUSE HANFORD COMPANY	$3	$2	$3	$1	$0	$10
766	BECHTEL NATIONAL, INC.	$8	$177	$465	$243	$1	$893
767	NUMERICAL ALGORITHMS GROUP, I	$0	$0	$13	$0	$0	$13
771	PURDUE UNIVERSITY	$4	$0	$0	$0	$0	$4
774	BATTELLE	$0	$0	$0	$0	$0	$0
775	SMITHSONIAN	$0	$0	$0	$0	$3	$3
776	UNIVERSITY OF ILLINOIS AT CHI	$0	$0	$0	$0	$0	$0
777	UNIVERSITY OF CHICAGO AT ANL	$59	$0	$0	$126	$45	$230
778	ARGONNE CREDIT UNION	$8	$0	$0	$0	$0	$8
779	UNIVERSITY OF ILLINOIS AT CHI	$8	$0	$0	$0	$0	$8
780	NEW BRUNSWICK LABORATORY	$15	$0	$0	$0	$0	$15
781	STATE OF ILL. DEPT. MENTAL HE	$0	$0	$0	$0	$6	$6
782	PACKER ENGINEERING	$0	$154	$0	$4	$193	$351
783	WEST VALLEY NUCLEAR SERVICES	$10	$0	$0	$0	$0	$10
SUBTOTAL		$12,416	$540	$1,841	$2,952	$6,211	$23,961

OPERATIONS

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHRL	CCTOTAL
143	SUPP SERV DIV - ELEC DEPT	$68	$19	$0	$241	$148	$476
148	HUMAN RESOURCES-MEDICAL DEPT	$1,013	$0	$0	$89	$320	$1,423
150	SUPPORT SERV DIV - SPEC MATLS	$180	$0	$0	$55	$139	$374
161	TECH INFO SERVICES DEPT	$866	$333	$0	$196	$756	$2,151
201	OFFICE OF THE DIRECTOR	$243	$0	$0	$192	$280	$716
202	OFC OF CHIEF OPER OFCR	$25	$0	$0	$63	$30	$118
210	SUPP SERV DIV - CENT SHOPS	$144	$0	$0	$51	$77	$271
216	SUPPORT SERVICES DIVISION	$109	$0	$0	$54	$30	$193
222	PLANT FAC & SERV-LODGING FAC	$0	$0	$0	$0	$30	$30
232	SUPPORT SERV DIV - SECURITY	$333	$0	$0	$0	$64	$397
234	SUPP SERV DIV-HEALTH PHY	$315	$0	$0	$25	$94	$434
235	SUPP SERV DIV-ENV SAFE HEALTH	$859	$0	$0	$82	$222	$1,163
236	SUPPORT SERV DIV - FIRE DEPT	$0	$0	$0	$0	$30	$30
245	COMPUTING AND TELECOM DIV	$16,872	$0	$0	$3,195	$1,937	$22,004
247	COMP & TEL DIV - COM SERV	$2,111	$0	$0	$311	$1,153	$3,575
260	SUPP SERV DIV-GRAPHIC ARTS	$188	$211	$0	$90	$37	$526
275	OFFICE OF PUBLIC AFFAIRS	$409	$0	$0	$36	$53	$498
276	OFC PUB AF - MOTN PIC UNIT	$29	$0	$0	$1	$3	$32
296	TELECOM COST/RECOVERY	$0	$0	$0	$285	$0	$285
315	SUPP SERV DIV-MATLS & SERV	$2,320	$0	$0	$665	$472	$3,456
316	PLANT FAC & SERV-VEH MAINT	$0	$0	$0	$0	$83	$83
317	PLANT FAC & SERV-DRIV&RIG SER	$11	$0	$0	$0	$30	$41
319	SUPP SERV DIV-TRAVEL OFC	$9	$0	$0	$392	$30	$431
322	SUPP SERV DIV-PROCUREMENT	$41	$0	$0	$1	$50	$92
333	QA, ENVIR & SAFETY OFC	$375	$2	$0	$65	$134	$576
340	APS DIVISION MANAGEMENT	$0	$0	$0	$1	$0	$1
400	OFC OF CHIEF FIN OFFICER	$52,677	$0	$0	$1,499	$13,704	$67,881
401	ACCOUNTING	$0	$0	$0	$22	$14	$36
402	OFC CHIEF FIN OFCR-DATA ENTRY	$11	$0	$0	$125	$0	$136
403	BUDGET OFFICE	$0	$0	$0	$0	$30	$30
410	HUMAN RESOURCES DEPARTMENT	$7,970	$0	$0	$916	$912	$9,799
412	AFFIRM ACTION PROGRAM	$75	$0	$0	$38	$120	$233
501	PLANT FAC & SERV-BLDG MAINT	$38	$0	$0	$35	$267	$340
502	PLANT FAC & SERV-INSTALLATION	$0	$0	$0	$0	$30	$30
503	PLANT FAC & SERV-GROUNDS	$0	$0	$0	$0	$30	$30
504	PLANT FAC & SERV-CUSTODIAL	$0	$0	$0	$0	$30	$30
505	PLANT FAC & SERV-WASTE MGMT O	$55	$0	$0	$42	$30	$127
506	PLANT FAC & SERV-PLANT MGR OF	$173	$0	$0	$41	$31	$245
510	PLANT FAC & SERV-UTILITY SYST	$0	$0	$0	$0	$30	$30
512	PLANT FAC & SERV-FAC PLNG/ENG	$429	$0	$0	$16	$107	$552
530	SITE MGRS OFC-ANL WEST	$28	$0	$0	$0	$31	$59
531	PERSONNEL-ANL WEST	$31	$0	$0	$7	$30	$67
532	SPECIAL MATLS-ANL WEST	$766	$0	$0	$109	$193	$1,069
533	ACCOUNTING-ANL WEST	$0	$0	$0	$0	$30	$30
534	PURCHASING-ANL WEST	$0	$0	$0	$0	$30	$30
535	SECURITY - ANL WEST	$19	$0	$0	$0	$30	$49
536	SAFETY STAFF-ANL WEST	$325	$0	$0	$37	$32	$394
537	INFORMATION SERVICE-ANL WEST	$0	$0	$0	$0	$30	$30
538	MATLS HANDLING-ANL WEST	$76	$0	$0	$8	$30	$115
550	COMPUTER APPL & SERV - ANL-W	$110	$0	$0	$70	$30	$210
551	RAD MONITORING-ANL WEST	$8	$0	$0	$0	$30	$38
554	MACHINE SHOP-ANL WEST	$20	$0	$0	$1	$30	$51
556	SITE ENGRG-ANL WEST	$82	$100	$0	$37	$30	$249
557	PLANT SERVICES-AW-SERVICE REQ	$90	$0	$0	$7	$30	$127
558	PLANT SERVICES-AW-FUNCTION	$4	$0	$0	$0	$0	$4
559	FOOD SERVICES - ANL WEST	$0	$0	$0	$0	$30	$30
561	OFC OF QUALITY ASSURANCE - AW	$4	$0	$0	$0	$31	$35
563	TALENT RESOURCE POOL-ANL WEST	$0	$0	$0	$0	$30	$30
730	OPERATING WORK PROJECTS	$0	$0	$0	$0	$-85	$-85
SUBTOTAL		$89,510	$666	$0	$9,103	$22,128	$121,407
TOTAL		$202,795	$54,023	$131,060	$50,375	$47,409	$485,662

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	**Onsite (Illinois)**	**Onsite (Idaho)**	**Offsite (Area Code 708)**
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-3270	n.a.	972-3270
X.25 Terminal Multiplexor 300 to 19.2K Bits Per Second(Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-2525	n.a.	972-2525
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-8700	n.a.	972-8700
Argonne TCP/IP Network 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-5588	n.a.	972-5588
Argonne MFEnet Dial-Up 300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
Tymnet Commercial Packet-Switching Network Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.			

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	**VM/SP**	**VMS**	**MFEnet Gateway**
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.

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Argonne National Laboratory
Computing and Telecommunications Division
April 1990

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering one class. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

CRAY X-MP ARCHITECTURE AND VECTORIZATION TECHNIQUES

Goals:	To learn to optimize Fortran programs on the Cray X-MP/14 high performance computer. Topics include Cray X-MP architecture, vectorization, and optimization.
Length of Class:	Two days
Dates and Time:	May 16, 1990 (Tuesday), 1:30 p.m. to 4:30 p.m. May 19, 1990 (Thursday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-216
Instructors:	Tom Canfield Pete Bertoncini

COMPUTER-BASED TRAINING COURSES

CTD currently offers 37 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH	Introduction and Advanced Concepts of Xedit

CRWTH CBT Courses

(Enter CBT "course name" at the CMS prompt.)

General Data Processing Courses	
DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center
Application System Courses	
ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS
CMS Courses	
CMS	Using CMS
XEDIT	Using XEDIT
SAS Courses	
SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph
Tellagraf Course	
TELLAGRA	Using TELLAGRAF
MVS Batch Courses	
JCL	Introduction to Basic JCL
Basic Project Management Course	
MANAGE	Project Management Concepts and Principles (see also ASPROJ)
TSO Courses	
TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)
Miscellaneous Courses *(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)*	
ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting

To register for a class, call extension 2-5405.

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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

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Computing Center Classes

COMPUTING AND TELECOMMUNICATIONS DIVISION
Argonne National Laboratory
Building 221
Argonne, Illinois 60439-4822
FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	**Phone**	**Electronic Mail Address**
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Computer Network	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Data Communications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	A159	2-7329	B32848 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.1, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

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COMPUTING COMMENTS

MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASS

The Mathematics and Computer Science Division is offering a three-day class (9:00 a.m. to 4:30 p.m., on Wednesday, Thursday, and Friday, June 13-15, 1990) on how to write programs for the parallel computer systems in the Argonne Advanced Computing Research Facility (ACRF).

The class will cover the following topics: (1) parallelizing compilers, (2) using packages for portable parallel programming (including the Monitor package and the Schedule package), (3) programming the TC2000 (Butterfly II), (4) programming the Distributed Array Processor (DAP), and (5) programming the Connection Machine-2. On the third day, a portion of class time will be spent on each attendee's project. The class will include hands-on experience in writing and running programs on each machine. Participants will become familiar with the ACRF environment. Some knowledge of Unix and Fortran is necessary. To become familiar with Unix, refer to *A Practical Guide to UNIX System* (0-8053-0243-3), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address huml@mcs.anl.gov. There is a $25.00 charge per person for universities, federal laboratories, and other government organizations and a $100 charge for commercial organizations.

COMPUTING CLASSES SCHEDULED FOR MAY AND JUNE 1990

During May and June 1990, CTD will offer eight classes and two seminars. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Cray X-MP Architecture and Vectorization Techniques (two 3-hour sessions) is for users who want to optimize their Fortran program to take full advantage of the Cray X-MP/14 high performance computer. Topics include Cray architecture, vectorization, optimization, performance analysis tools, and code examples.

Introduction to Computing Facilities and Services (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

Introduction to Wylbur for MVS Batch Computing (one 3-hour session) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the IBM MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit IBM MVS and Cray UNICOS batch jobs; and to review IBM MVS and Cray UNICOS batch output.

Introduction to VAX/VMS (one 3-hour session) is for first-time VAX/VMS users who need an overview of the features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up sub-directories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to EVE." Everyone registering for this class should request an account on the VAX 8700 before attending the class to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

Programming in VAX/VMS (one 3-hour session) acquaints VMS users with features of VMS. Topics include programming VAX Fortran; writing DCL (Digital Command Language) procedures; using the VMS system debugger, the runtime library, and system services; and reviewing VMS internals.

Using Directory Manager on the VAX 8700 Computer (one 1-hour session) acquaints users with the VMS Directory Manager utility. The Directory Manager gives users a visual representation of their directory structure and allows users to work with their files and directory structure more easily.

Using CMS on IBM 3270-Compatible Display Terminals (one 3-hour session) is for CMS users on an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or an ASCII terminal with the Hydra Protocol Converter. The class is for people who send or receive electronic mail; who organize information in files and obtain information from files; who create and modify data, programs, or text files; or who use applications packages such as Cuechart, SAS, Script, and Tellagraf. Everyone registering for the CMS class must have a VM/SP account before attending the class. To request an account, contact Account Services (Building 221, Room A-147, extension 2-5425).

Introduction to UNICOS (two 3-hour sessions) is for new users who want basic information on UNICOS on the Cray X-MP/14 high-performance computer. The class covers introductory material on the Unix file system, space management, and shell programming and how to submit jobs and to manage Cray files from the IBM MVS front-end stations or from scientific workstations using Transmission Control Protocol/Internet Protocol (TCP/IP).

SAS: An Overview of Statistics, Graphics, and Reporting Capabilities (one 1-hour seminar) looks at the various pieces of the SAS Software System available on the IBM MVS and CMS operating systems, on the VAX 8700 VMS operating system, and for IBM Personal Computers. We will explore the ways that you can use the many available procedures to help you do your work (from report writing to simple statistics to complex 3-D graphical output).

Tellagraf: An Overview of Its Graphics Capabilities (one 1-hour seminar) presents a "top-down" view of the CA-Tellagraf interactive graphics software available on the IBM CMS and VAX 8700 VMS operating systems. It is also available on some of the divisional VAXes. Users can easily create word charts, line plots, bar and pie charts, and tables while retaining full control over the plot characteristics and data values. You can draw your completed plots on a wide variety of graphics hardcopy devices.

HIGH-PERFORMANCE COMPUTING SEMINAR

The series of high-performance computing seminars is continuing. An upcoming talk for May is:

Lars Elden, Linkoping University, Sweden
Iterative Solution of Non-Symmetric Systems Arising in Hyperbolic PDEs
Friday, May 4, 1990

Check the *Argonne Bulletin* and the special announcements for the times and locations of the seminars. To have your name added to the distribution list for abstracts, please contact Claudette DaCosse at extension 2-5415.

CMS NEWS

SAS 5.18 GOES PRODUCTION IN CMS

SAS Version 5.18, which has been available for testing for several months, becomes the production version on May 14, 1990. This version of SAS is primarily a maintenance update, although a couple of new items may be of interest to you: a variety of Bitstream fonts (such as Brush, Zapf, and SwissBI) are now available, along with additional graphics devices (such as PostScript in 72, 150, 300, 720, and 1,200 dots per inch resolution) are also available.

Before the cutover date, the 5.18 version is available on CMS by linking to the SAS minidisk.

Full-screen CMS SAS users who work in the interactive mode (versus the non-interactive mode) will notice one difference: the SAS display will be a "windowed" display instead of a line-by-line display. Full-screen users should benefit from the new windowing environment; however, if you wish to display SAS in line-by-line mode when using a full-screen terminal, invoke the "NODMS" option by entering (in CMS):

```
SAS (NODMS
```

To use the SAS Institute's PostScript driver with SAS/Graph procedures, issue the following SAS statements:

```
GOPTIONS DEVICE=PS300 GSFLEN=132 GSFMODE=REPLACE
   NODISPLAY;
   .
   .
   .
 SASGRAPH statements
   .
   .
   .
```

The PostScript output will be written into a file called PS300 GSF A1 that you may send to a PostScript printer with the **HARDCOPY** command.

To learn more about what's new in SAS Version 5.18, see *SAS Technical Report P-175, Changes and Enhancements to the SAS System, Release 5.18, under OS and CMS,* available for reference in the CTD Reference Library located in Building 221, Room A-142.

CRAY NEWS

CRAY DISK FILE STORAGE IMPROVED

CTD has moved the /n2 file system on the Cray X-MP/14 to IBM 3380-type disks from Amdahl. We encourage users to store Cray files on the /n2 file system instead of storing them on the VAX or IBM systems and accessing them with the **fetch** and **dispose** commands. The /n2 file system is also available over the Laboratory-wide TCP/IP network as a network file system (NFS) server.

To promote use of the Cray /n2 file system, CTD has set the disk storage rates for the /n2 system to be the same as the VAX and IBM disk storage rates. If /n2 file system use increases, we will convert additional IBM 3380-type disks to Cray use.

We are taking this action to help alleviate the disk storage situation currently developing on the central VAX cluster.

CRAY TCP/IP ADDRESS CHANGES

CTD plans to change the Internet Protocol (IP) address of the Cray on Tuesday, May 15, 1990. The new address, 130.202.128.5, will replace the present address 192.5.175.5. All hosts running the Transmission Control Protocol/Internet Protocol (TCP/IP) protocol by using the static host table will need to update the **/etc/hosts** table on May 15, 1990. Hosts using the Domain Name System will not require any changes. The new address of the Cray will be transparent to these hosts and their users.

NSPCG SOLVES SPARSE SYSTEMS OF LINEAR EQUATIONS ON THE CRAY

CTD installed the Non-Symmetric Preconditioned Conjugate Gradient (NSPCG) solver on the Cray X-MP/14. NSPCG is a library of Fortran subroutines to solve large sparse non-symmetric systems of linear equations, A*x=b, iteratively. Researchers at the Center for Numerical Analysis at the University of Texas at Austin developed this package. It contains a wide selection of preconditioners and accelerators for both symmetric and non-symmetric coefficient matrices.

There are two ways to access routines in NSPCG routines. Either call the solver routine directly from your program or call an interface routine. Using the interface routine allows the user to investigate various solution strategies. Once the appropriate solution strategy has been determined for a production system, the appropriate routines can be accessed directly. When a program accesses the interface routine, its executable image will be much larger than a similar program that just accesses the solver routines it needs.

To use NSPCG, first you have to compile your program by entering:

```
cft77 myprog.f
```

or

```
cft myprog.f
```

Next you need to include this library in the **segldr** command by entering:

```
segldr -l nspcg -- myprog.o
```

Alternatively, you can combine these two steps into one command by entering:

```
cf77 - l nspcg myprog.f
```

or

```
cf - l nspcg myprog.f
```

where "cf77 - l nspcg myprog.f" or "cf" is the compile and load UNICOS command.

Then, you can run the program by entering

```
a.out <input.file >output.file
```

where "input.file" is the redirected **stdin** and "output.file" is the redirected **stdout** of the program.

For more information on NSPCG, refer to the *NSPCG User's Guide* (CNA-216) available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). If you are interested in NSPCG, please contact Tom Canfield at extension 2-5488.

MANAGEMENT INFORMATION SYSTEMS

INTEGRATED FINANCIAL SYSTEM UPDATE

In March 1990, the Integrated Financial System (IFS) Project Team completed the first version of the User Report Maintenance System and presented it to a select group of IFS users. The system allows users to maintain their own or others' report selection criteria (including adding new report requests, changing existing selection criteria, deleting report requests, cloning new reports from existing reports, changing report output characteristics, and submitting reruns and ad hoc runs of reports). In April 1990, the User Report Maintenance System was modified to incorporate suggestions made by the test group. On May 8, 1990, the Project Team will present the system to the Financial Applications Committee to Effect Telesis (FACET) meeting.

During the March 1990 month-end IFS reporting cycle, the Project Team ran the new IFS Travel Reports for the users for the first time. The Project Team continues to improve the monthly service center reports. If you experience any problems with these reports, please notify Nick Moore at extension 2-8075.

The Project Team also developed and tested several productivity enhancements for Cost Accounting (including automation of the "99" account distribution, a cost transfer system that saves rekeying, and an automatic recode facility for closed subaccounts in work projects).

Progress on all phases of the IFS project will be reported at the FACET meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

MVS NEWS

SAS 5.18 GOES PRODUCTION IN MVS

SAS Version 5.18, which has been available for testing for several months, will become the production version on May 14, 1990. This version of SAS is primarily a maintenance update, although a couple of new items may be of interest to you: a variety of Bitstream fonts (such as Brush, Zapf, and SwissBI) are now available, along with additional graphics devices (such as PostScript in 72, 150, 300, 720, and 1,200 dots per inch resolution) are also available.

Before the cutover date, the 5.18 version is available on MVS with through the Job Control Language (JCL):

```
// EXEC SAS,SASLIB='SYS2.SAS.LIBRARY'
```

or

```
// EXEC SASGRAPH,SASLIB='SAS2.SAS.LIBRARY,
//    GRAFLIB='SYS2.SASGRAPH.LIBRARY'
```

After the cutover date, use JCL similar to:

```
// EXEC SAS
```

or

```
// EXEC SASGRAPH
```

To use the SAS Institute's PostScript driver with SAS/Graph procedures, issue the following JCL

```
// EXEC SASGRAPH
//PSOUPUT OUTPUT DEST=node.dest,UCS=PS
//FT32F001 DD SYSOUT=A,OUTPUT=*.PSOUTPUT,
//   DCB=(RECFM=FB,LRECL=132,BLKSIZE=1320)
//SYSIN DD *
GOPTIONS DEVICE=PS300 GSFLEN=132 GSFMODE=REPLACE
    NODISPLAY GSFNAME=FT32F001;
    .
    .
    .
 SAS statements
    .
    .
    .
/*
```

where "node.dest" is the network address of your PostScript printer (e.g., ANLOS.RADS13).

To learn more about what's new in SAS Version 5.18, see *SAS Technical Report P-175, Changes and Enhancements to the SAS System, Release 5.18, under OS and CMS,* which is available for reference in the CTD Reference Library located in Building 221, Room A-142.

VAX/VMS NEWS

ADDITIONAL VAX 8700 MEMORY INSTALLED

On April 18, 1990, CTD added new memory to the VAX 8700 computer. In a competitive procurement, CTD purchased and installed two new 64-megabyte memory increments and traded in our two existing 16-megabyte memory increments, resulting in a total memory size of 128 megabytes.

Since CTD installed the new memory, the VAX 8700 computer has been operating with much less overhead for memory management activities. VAX users should notice better interactive and batch response and lower charges for their VAX 8700 computer jobs.

We will be considering global memory parameter changes in the future. In the meantime, you do not have to do anything to benefit from the increased memory.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD APRIL 3, 1990

Dotti Bingaman (Environmental Assessment and Information Sciences) opened the meeting at 3:04 p.m.

Dotti noted that the Computer Users Group (CUG) and the Computing Policy Committee (CPC) Network Subcommittee would be sponsoring a workshop on local area networks on April 24 and 25, 1990. The first day will focus on Apple and 3Com networks, and the second day will cover Unix and DEC networks.

The remainder of the meeting was devoted to the floors and their effect. Doug Engert (Computing and Telecommunications) and Mike Boxberger (Computing and Telecommunications) gave presentations and led the discussion of the topic.

Doug showed data indicating that the Cray X-MP/14 is saturated, with growing amounts of high priority work running during the day. A special, short-term project in the Chemistry Division (which involved a considerable amount of class "u" computing) contributed to the crunch in March 1990. The Central VAX 8700 computer is also becoming very busy, and disk space is tight. A memory upgrade scheduled for April 1990 will quadruple the VAX 8700 computer memory to 128 megabytes and is expected to help. Doug also noted that IBM batch work is up moderately. These data appear on charts posted in the hall near the Systems Programming Group offices on the second floor of Building 221.

Mike Boxberger talked about the floors themselves and showed the allocation by Associate Laboratory Director (ALD); they are based on overall ALD budget share. He pointed out that the specific floors for divisions are allocated in the offices of the ALDs'; CTD does not know them. If a cost center spends more than its floor in an assessment period (but has paid an assessment in a previous period) that cost center will get a rebate later in the year.

Doug talked about his concern for "the long, hot summer." It is not clear if CTD can provide enough central processing unit (cpu) cycles between now and the end of the year to consume the floors. They will certainly be unable to do so if too many users wait until the end of the fiscal year to do their computing. He strongly recommends that users use COSTCSUM and other tools to monitor their spending and that they talk to their cost center financial people. Doug (and others) made several specific suggestions:

1. Compute now, before the influx of summer people and the end-of-the-year crunch.
2. If possible, switch work to the IBM machine, which has more unused batch capacity. If all goes well, the Laboratory will install the replacement IBM machine during the summer, and it will have twice the capacity of the IBM 3033 computers.
3. If users bid up their jobs to the point where most of the work is submitted at the highest priority, adjust all the computing rates upwards (e.g., double them). If all work were submitted at the same priority the scheduling would become essentially first-in-first-out (FIFO), and a rate adjustment might be desirable to preserve the user's ability to differentiate job priorities.
4. CTD can implement the "fair-share" scheduling system that is an option in UNICOS. Under this algorithm, which is a sort of real-time rationing, jobs would be run in such a way as to ensure that over a period of time each of several individuals or groups would get a predetermined fraction of the available CPU time. An advantage of this scheme is that it might deal more fairly with any "FIFO" problems (see suggestion 3) caused by a few users flooding the machine with work. Possible disadvantages include (1) the work (including negotiations) involved in setting it up and (2) problems within a group caused by a few users submitting a lot of work.

The first two suggestions are options that are open to users at any time. The consensus of the meeting was that we do nothing else until the situation gets much worse than it is now, and then consider suggestions 3 and/or 4 above.

The meeting adjourned at 4:05 p.m.

Cy Adams, Acting CUG Secretary

MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD MARCH 9, 1990

Chairperson Mary Warren (Energy, Environmental and Biological Research) opened the meeting at 12:10 p.m.

Joe Paulini (Graphic Arts) gave an update on recent developments in Graphic Arts. Customer Service Representative (CSR) Kim Andretich transferred to the Reactor Analysis and Safety Division. Lisa Filotto will handle her work until a new person is hired. Graphic Arts is receiving bids for a new press. Joe also passed out copies of the *1990 Graphic Arts Users Guide*. Graphic Arts printed five hundred copies of the *Guide*. Call your CSR if you would like one. Note that the price lists are not in the book; they will be available later.

The remainder of the meeting focused on quality control in Graphic Arts. Several users mentioned problems related to printing (including blank, double-printed, and dirty pages, screens that disappeared, and uneven ink coverage). Bill Jepsen (Graphic Arts) responded by first describing the quality control procedures Graphic Arts follows. First, each press person watches the job while it is being printed. Then the paper cutte flips through the pages of the job, looking fo errors. A spot-check is also done as the pages come out of the collator. Finally, the CSRs and assistants check over the jobs. In the.past, someone in Graphic Arts checked every page of eac job after it was collated, but the number of mistakes that the person found did not justify the cos (which was passed on to the user). Graphic Art has found that the procedures mentioned abov have enabled its staff to find and correct mos errors before delivery. Nevertheless, Bill recommended that the requester spot-check about 10 percent of the printed documents. Only if the requester finds errors in 20 percent or more of th documents should the person look at all the documents. Bill also mentioned that problems occu more often on rush jobs and when there are a lot o jobs that are due at the same time. Since Graphi Arts does not have the option of buying anothe press to achieve a smoother production cycle, it i now experimenting with using a second shift in th pressroom. Bill suggested that users try to schedule their due dates for less busy days (Tuesday and Wednesdays).

Other problems were the result of unclea instructions or bad design choices. Joe stated tha the CSR should notify the authors of any potentia problems and provide them with printed samples of any unusual pages for approval before printing the entire job. However, the authors should ask to be advised about potential problems or ways to make their jobs more economical or of better quality. When the authors supply direct and concise directions, the CSR may hesitate to question an author's judgment. In fact, the job may actually bypass the CSR and go directly to the pressroom. The user should try to provide the CSR with as much information as possible. Joe suggested following the checklist of items on page 39 of the *Users Guide*. The *Guide* also contains a list of terms and examples to help users to determine their possibilities, to visualize results, and to avoid mistakes.

Some users expressed a concern over lost pages and instructions. Joe mentioned that although Graphic Arts produces about 16,000 jobs per year, rarely does Graphic Arts lose a job. This issue should not be of real concern to the users, but they should keep a copy of everything they send to Graphic Arts.

The quality of PMS color was another item of concern. Joe stated that the final printed PMS colors should match the standard. Either the author or the CSR can check the color while the pages are being run on the press. If a problem is found at that time, then it is easy to fix.

There was a final question related to costs. Mary Jo Thompson (Graphic Arts) said that all estimates are "ball park" estimates until a job is actually in hand. Users should tell their CSRs if they have limited budgets; the CSR can plan jobs according to the budgets. They should also notify Graphic Arts if the scope of the jobs change. Joe did say that Graphic Arts guarantees that it will stay within 10 percent of the amount quoted in a written estimate if the scope of the work remains as stated.

In conclusion, Joe mentioned that only 71 jobs out of 16,000 jobs had to be redone last year at Graphic Arts' cost.

Liz Stefanski (Advanced Photon Source) suggested that both users and CSRs should be aware that the mailroom also has requirements for jobs. For example, some jobs require envelopes, and others can be metered but need a staple-free edge. Users should resolve these issues early in the design of the project.

The meeting closed with a reminder from Joe Paulini that you can request tours of Graphic Arts by calling him at extension 2-8162.

The next meeting will be held on Thursday, May 10, 1990, at noon, in Building 201, Room 274.

Marita Moniger, Graphic Arts Users Group Secretary.

MINUTES OF MACINTOSH USERS GROUP MEETING HELD APRIL 11, 1990

Bob Kampwirth (Materials Science) opened the meeting at 11:00 a.m.

Paul Steimle (Environmental Assessment and Information Sciences) reported that Disinfectant 1.7 is now available. The WDEF virus is running rampant through the site, but Gatekeeper Aid does detect it. The ZUC virus has not hit the site yet.

The Apple Macintosh portion of the Networking Seminar will be held on Wednesday, April 25, from 1:00 p.m. to 2:45 p.m. in Building 205, Y-wing conference room.

Judy Santoro (Adobe System, Incorporated) discussed Adobe products and the company's approach to future developments. Adobe Type Manager is being packaged with Illustrator and with all Claris products. The "font war" reported by the media last fall between Adobe and Apple/Microsoft never happened. Adobe is now working with both Apple and Microsoft. Further, Adobe published their Type 1 font specs last month, and IBM has adopted Type 1 fonts for all its systems (from PS/2 up to 370 mainframes). While conceding that Microsoft TrueType has received a lot of good press, Judy pointed out that it is still vaporware, while Adobe is now working on the second revision of Adobe Type Manager.

Tom Klug (Klug Design) described the function of Adobe Photoshop (an image-processing program specifically designed for paint, pre-press, color correction, and electronic darkroom-type alteration of scanned photographs or slides). It can operate on gray-scale, 8-bit (or 24-bit) color and includes filters for special effects (such as sharpen edges, blur, add noise, and mosaic). It is compatible with multiple graphics formats (such as PICT, TIFF, and EPS) and features utilities for converting between different formats. The program lists for

$895 and requires two megabytes of random access memory (RAM), and it provides its own virtual memory system.

Possible topics for May's meeting include (1) Ashton-Tate Full Impact spreadsheet, (2) Odesta ODMS management information system on the VAX, (3) Apple Corporation's Apple Macintosh IIfx and A/UX 2.0, (4) terminal/PC emulation programs, (5) networking topics, and (6) the program, Spyglass.

The Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

Lee Wagar, Acting Macintosh Users Group Secretary.

WORKLOAD STATISTICS (FEBRUARY 28, 1990 THROUGH MARCH 29, 1990)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,246	1,242	497
Wylbur	1,667	1,661	386
MVS TSO	54	57	9
CICS	1,667	1,661	103
MVS Batch	2,138	2,135	652
VAX/VMS	523	531	301
Cray	434	319	137
All Systems	2,138	2,135	976

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION	CPU
	PRIME	NIGHT	WEEKEND	TOTAL	TIME (HRS)	TIME (HRS)
INTERACTIVE						
CMS	12,314	2,627	1,694	16,635	37,051.0	105.69
Wylbur	8,509	2,021	294	10,824	9,262.6	10.14
MVS TSO	110	0	0	110	77.6	0.31
CICS	46	29	21	96	0.0	5.01
VAX/VMS	14,600	1,690	1,163	17,453	21,258.9	397.20
Cray	1,059	96	51	1,206	1,606.7	5.29
IBM BATCH						
Class U	10092	1,964	925	12,981	n.a.	45.92
Class W	19,823	2,261	827	22,911	n.a.	200.38
Class X	0	552	110	662	n.a.	72.15
Class Y	0	0	248	248	n.a.	20.84
Nonmain	16,642	2,061	1,236	19,939	n.a.	0.00
Total	46,557	6,838	3,346	56,741	n.a.	339.29
CRAY BATCH						
u	1,059	96	51	1,206	n.a.	55.92
w	3,579	277	280	4,136	n.a.	200.94
x	456	211	153	820	n.a.	87.95
y	3,693	994	596	5,283	n.a.	254.48
Total	8,787	1,578	1,080	11,445	n.a.	599.29
VMS BATCH						
W_BATCH	684	253	117	1,054	n.a.	49.75
X_BATCH	13	67	12	92	n.a.	113.25
Y_BATCH	8	11	31	50	n.a.	86.04
Total	705	331	160	1,196	n.a.	249.04

INPUT/OUTPUT

Lines Printed	
Local	62,625,083
Remote	56,491,797
Fiche	34,796,180
Cards Punched-Local Only	9,449
Tape Mounts	6,875
Microfiche Developed	4,138
Microfiche Frames Developed	731,257

GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	117	n.a.
Matrix 35mm Color	75	260
Matrix-8 x 10	12	12
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	53	447
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	0	0
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	24,493
New Tapes Saved	269
Tapes Released	554
Datasets Exported to Tape	2,660
Datasets Imported from Tape	643

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (FEBRUARY 28 THROUGH MARCH 30 1990)

	Monthly Totals		*Scheduled*			*Unscheduled*	
		Hardware	*Software*	*Other*	*Hardware*	*Software*	*Other*
CMS							
All Shifts							
Interruptions	6.00	3.00	1.00		1.00		
Hrs Unavailable	19.06	4.55	2.33	12.08		0.10	
MTF/Unscheduled	700.93				700.93		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions							
Hrs Unavailable							
MTF/Unscheduled							
NYLBUR							
All Shifts							
Interruptions	11.00	1.00	6.00	1.00	1.00	2.00	
Hrs Unavailable	22.60	2.00	5.78	13.16	.53	1.11	
MTF/Unscheduled	232.46				697.40	348.70	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	3.00				1.00	2.00	
Hrs Unavailable	1.65				.53	1.11	
MTF/Unscheduled	87.45				262.35	131.17	
MVS TSO							
All Shifts							
Interruptions	11.00	1.00	6.00	1.00	1.00	2.00	
Hrs Unavailable	22.60	2.00	5.78	13.16	0.53	1.11	
MTF/Unscheduled	232.46				697.40	348.70	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	3.00				1.00	2.00	
Hrs Unavailable	1.65				0.53	1.11	
MTF/Unscheduled	87.45				262.35	131.17	
JES3							
All Shifts							
Interruptions	11.00	1.00	6.00	1.00	1.00	2.00	
Hrs Unavailable	22.60	5.78	13.16	0.53	1.11		
MTF/Unscheduled	232.46				697.40	348.70	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	3.00				1.00	2.00	
Hrs Unavailable	1.65				0.53	1.11	
MTF/Unscheduled	87.45				262.35	131.17	
CICS							
All Shifts							
Interruptions	2.00					2.00	
Hrs Unavailable	1.25					1.25	
MTF/Unscheduled	359.37					359.37	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00					2.00	
Hrs Unavailable	1.25					1.25	
MTF/Unscheduled	131.37					131.37	
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	10.00	1.00	8.00			1.00	
Hrs Unavailable	18.88	4.08	13.88			.91	
MTF/Unscheduled	701.11					701.11	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions							
Hrs Unavailable							
MTF/Unscheduled							
CRAY							
All Shifts							
Interruptions	14.00	5.00	5.00	1.00	1.00	2.00	
Hrs Unavailable	37.03	15.35	6.33	12.08	2.93	.33	
MTF/Unscheduled	227.65				682.96	341.48	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00				1.00	1.00	
Hrs Unavailable	3.18				2.93	0.25	
MTF/Unscheduled	130.40				260.81	260.81	

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (FEBRUARY 28 THROUGH MARCH 30, 1990)

ADVANCED PHOTON SOURCE

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
130	ADVANCED PHOTON SOURCE DIV	$596	$80	$0	$542	$222	$1,441
272	ADVANCED PHOTON SOURCE	$38	$0	$0	$9	$10	$58
341	APS ACCELERATOR PHYSICS	$347	$4,054	$573	$219	$95	$5,287
343	APS LINAC	$0	$655	$0	$72	$103	$830
345	APS VACUUM	$4	$2,093	$0	$43	$1,878	$4,018
347	APS CONTROLS	$64	$2	$0	$1	$142	$209
348	APS MAGNETS	$78	$2	$0	$1	$18	$99
349	APS POWER SUPPLIES	$42	$0	$0	$3	$0	$45
350	APS DIVISION MANAGEMENT	$1	$0	$0	$0	$0	$2
351	APS INSERTION DEVICES	$86	$576	$0	$60	$16	$737
353	APS BEAM LINE INSTRUMENTATION	$20	$0	$0	$0	$0	$20
360	APS CONVENTIONAL FACILITIES	$464	$2	$0	$6	$123	$595
361	APS PROJECT DIRECTION	$12	$0	$0	$0	$0	$12
362	APS MANAGEMENT GENERAL	$16	$0	$0	$0	$0	$16
SUBTOTAL		$1,770	$7,463	$573	$956	$2,607	$13,369

ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
110	BIO & MED RES DIV	$2,429	$2,323	$246	$1,140	$1,222	$7,360
125	TECHNOLOGY TRANSFER CENTER	$149	$0	$0	$7	$117	$274
149	ENVIROMMENTAL RESEARCH DIV	$1,592	$374	$1,022	$678	$447	$4,112
155	ENERGY SYSTEMS DIVISION	$8,316	$558	$5,496	$1,144	$1,052	$16,567
165	ENV ASSESS & INFO SCI DIV	$19,823	$17,335	$2,505	$3,041	$2,427	$45,131
174	ENER/ENV/BIO PROG DIR	$15	$0	$0	$0	$100	$115
197	SPECIAL PROJECTS OFFICE	$344	$9	$0	$18	$124	$495
246	ES-NAT'L ENERGY SOFTWARE CTR	$107	$0	$0	$633	$480	$1,221
274	ENER/ENV/BIO RES PROG ADM	$84	$0	$0	$2	$100	$186
SUBTOTAL		$32,859	$20,600	$9,269	$6,662	$6,070	$75,459

ENGINEERING RESEARCH

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
102	EBR-II PROJECT-ANL WEST	$2,098	$150	$202	$578	$147	$3,175
107	CHEMICAL TECHNOLOGY DIVISION	$950	$145	$0	$1,223	$391	$2,710
112	REACTOR ANAL & SAFETY	$18,680	$399	$7,200	$6,841	$4,829	$37,950
114	MATLS & COMP TECH DIV	$5,041	$5,800	$284	$3,217	$1,889	$16,230
115	ENGINEERING PHYSICS DIVISION	$35,702	$7,645	$51,535	$10,108	$10,519	$115,509
117	APPLIED PHYSICS-ANL WEST	$4,091	$14	$6,499	$281	$401	$11,287
118	REACTOR EXP & EXAM DIV	$1,952	$467	$4	$185	$236	$2,843
119	ANALYTICAL LABORATORY ANL-WES	$0	$0	$0	$0	$100	$100
171	ENGRG RES PROG DIR	$4	$0	$0	$0	$105	$109
211	ENGINEERING PHYSICS DIVISION	$106	$16	$0	$11	$2,898	$3,031
269	CHEM TECH DIV-ANALYTICAL CHEM	$60	$0	$0	$3	$114	$177
271	ENGRG RES PROG ADMIN	$109	$0	$0	$3	$100	$213
SUBTOTAL		$68,794	$14,635	$65,724	$22,448	$21,731	$193,333

EXTERNAL

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
751	FERMI NATIONAL LABORATORY	$827	$0	$0	$460	$391	$1,679
752	NAVY	$11,602	$0	$0	$1,317	$5,871	$18,791
753	MORGANTOWN ENERGY TECH CENTER	$16	$0	$0	$650	$0	$666
754	DEPARTMENT OF ENERGY AT ANL	$2	$0	$0	$1	$0	$2
755	ROCKWELL INTERNATIONAL	$3	$0	$0	$0	$0	$3
756	LOS ALAMOS	$29	$0	$0	$1	$0	$30
760	ABBOTT LABORATORIES	$12	$50	$2,247	$39	$0	$2,349
762	STATE UNIVERSITY OF NEW YORK	$10	$25	$4	$6	$69	$114
763	GENERAL ELECTRIC COMPANY	$0	$3	$0	$5	$0	$8
765	WESTINGHOUSE HANFORD COMPANY	$2	$2	$4	$0	$0	$7
766	BECHTEL NATIONAL, INC.	$77	$431	$2,216	$124	$1	$2,849
767	NUMERICAL ALGORITHMS GROUP, I	$0	$0	$13	$0	$0	$13
771	PURDUE UNIVERSITY	$4	$0	$0	$0	$0	$4
774	BATTELLE	$0	$1	$0	$0	$0	$1
775	SMITHSONIAN	$0	$0	$0	$0	$3	$3
776	UNIVERSITY OF ILLINOIS AT CHI	$0	$0	$0	$0	$0	$0
777	UNIVERSITY OF CHICAGO AT ANL	$63	$0	$0	$127	$0	$190
778	ARGONNE CREDIT UNION	$8	$0	$0	$0	$0	$8
779	UNIVERSITY OF ILLINOIS AT CHI	$8	$0	$0	$0	$0	$8
780	NEW BRUNSWICK LABORATORY	$16	$0	$0	$0	$0	$16
781	STATE OF ILL. DEPT. MENTAL HE	$0	$0	$0	$0	$6	$7
782	PACKER ENGINEERING	$0	$178	$0	$30	$77	$285
783	WEST VALLEY NUCLEAR SERVICES	$78	$0	$0	$2	$1	$81
SUBTOTAL		$12,760	$690	$4,484	$2,761	$6,419	$27,114

OPERATIONS

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
143	SUPP SERV DIV - ELEC DEPT	$87	$14	$0	$232	$215	$548
148	HUMAN RESOURCES-MEDICAL DEPT	$1,135	$0	$0	$162	$467	$1,764
150	SUPPORT SERV DIV - SPEC MATLS	$210	$0	$0	$38	$152	$399
161	TECH INFO SERVICES DEPT	$980	$1,898	$0	$851	$1,167	$4,897
201	OFFICE OF THE DIRECTOR	$203	$0	$0	$211	$242	$656
202	OFC OF CHIEF OPER OFCR	$26	$0	$0	$63	$116	$205
210	SUPP SERV DIV - CENT SHOPS	$165	$0	$0	$80	$202	$447
216	SUPPORT SERVICES DIVISION	$210	$0	$0	$53	$102	$364
222	PLANT FAC & SERV-LODGING FAC	$0	$0	$0	$0	$100	$100
232	SUPPORT SERV DIV - SECURITY	$335	$0	$0	$0	$179	$514
234	SUPP SERV DIV-HEALTH PHY	$914	$0	$0	$189	$328	$1,431
235	SUPP SERV DIV-ENV SAFE HEALTH	$1,160	$0	$0	$136	$428	$1,724
236	SUPPORT SERV DIV - FIRE DEPT	$0	$0	$0	$0	$100	$100
245	COMPUTING AND TELECOM DIV	$17,525	$0	$0	$3,465	$2,292	$23,282
247	COMP & TEL DIV - COM SERV	$2,018	$0	$0	$350	$1,858	$4,226
260	SUPP SERV DIV-GRAPHIC ARTS	$197	$223	$0	$87	$69	$577
275	OFFICE OF PUBLIC AFFAIRS	$625	$0	$0	$183	$127	$935
276	OFC PUB AF - MOTN PIC UNIT	$36	$0	$0	$2	$4	$41
296	TELECOM COST/RECOVERY	$0	$0	$0	$285	$0	$285
315	SUPP SERV DIV-MATLS & SERV	$3,098	$0	$0	$773	$520	$4,391
316	PLANT FAC & SERV-VEH MAINT	$0	$0	$0	$0	$157	$157
317	PLANT FAC & SERV-DRIV&RIG SER	$12	$0	$0	$0	$100	$112
319	SUPP SERV DIV-TRAVEL OFC	$10	$0	$0	$246	$100	$356
322	SUPP SERV DIV-PROCUREMENT	$41	$0	$0	$1	$100	$142
333	QA, ENVIR & SAFETY OFC	$362	$1	$0	$71	$286	$720
340	APS DIVISION MANAGEMENT	$0	$0	$0	$0	$0	$0
400	OFC OF CHIEF FIN OFFICER	$47,622	$0	$0	$1,775	$15,521	$64,918
401	ACCOUNTING	$0	$0	$0	$19	$100	$119
402	OFC CHIEF FIN OFCR-DATA ENTRY	$12	$0	$0	$125	$0	$137
403	BUDGET OFFICE	$0	$0	$0	$0	$100	$100
410	HUMAN RESOURCES DEPARTMENT	$9,804	$0	$0	$943	$1,327	$12,074
412	AFFIRM ACTION PROGRAM	$65	$0	$0	$35	$100	$200
501	PLANT FAC & SERV-BLDG MAINT	$36	$0	$0	$35	$153	$224
502	PLANT FAC & SERV-INSTALLATION	$0	$0	$0	$0	$100	$100
503	PLANT FAC & SERV-GROUNDS	$0	$0	$0	$0	$100	$100
504	PLANT FAC & SERV-CUSTODIAL	$0	$0	$0	$0	$100	$100
505	PLANT FAC & SERV-WASTE MGMT O	$52	$0	$0	$41	$100	$193
506	PLANT FAC & SERV-PLANT MGR OF	$542	$0	$0	$97	$235	$873
510	PLANT FAC & SERV-UTILITY SYST	$0	$0	$0	$0	$100	$100
512	PLANT FAC & SERV-FAC PLNG/ENG	$421	$0	$0	$14	$203	$637
530	SITE MGRS OFC-ANL WEST	$29	$0	$0	$0	$101	$130
531	PERSONNEL-ANL WEST	$62	$0	$0	$45	$100	$206
532	SPECIAL MATLS-ANL WEST	$977	$0	$0	$168	$282	$1,428
533	ACCOUNTING-ANL WEST	$0	$0	$0	$0	$100	$100
534	PURCHASING-ANL WEST	$0	$0	$0	$0	$100	$100
535	SECURITY - ANL WEST	$20	$0	$0	$0	$100	$120
536	SAFETY STAFF-ANL WEST	$184	$0	$0	$3	$102	$289
537	INFORMATION SERVICE-ANL WEST	$0	$0	$0	$0	$100	$100
538	MATLS HANDLING-ANL WEST	$86	$0	$0	$18	$100	$203
550	COMPUTER APPL & SERV - ANL-W	$141	$0	$0	$85	$130	$356
551	RAD MONITORING-ANL WEST	$8	$0	$0	$0	$100	$108
554	MACHINE SHOP-ANL WEST	$22	$0	$0	$1	$100	$123
556	SITE ENGRG-ANL WEST	$72	$33	$0	$21	$100	$226
557	PLANT SERVICES-AW-SERVICE REQ	$84	$0	$0	$7	$100	$191
558	PLANT SERVICES-AW-FUNCTION	$4	$0	$0	$0	$0	$4
559	FOOD SERVICES - ANL WEST	$0	$0	$0	$0	$100	$100
561	OFC OF QUALITY ASSURANCE - AW	$4	$0	$0	$0	$101	$105
563	TALENT RESOURCE POOL-ANL WEST	$0	$0	$0	$0	$100	$100
SUBTOTAL		$89,599	$2,170	$0	$10,907	$29,565	$132,241

PHYSICAL RESEARCH

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
105	MATERIALS SCIENCE DIVISION	$1,441	$12,630	$31,876	$3,425	$-324	$49,049
109	PHYSICS DIV	$2,244	$1,935	$1,431	$2,121	$541	$8,273
120	CHEMISTRY DIV	$1,412	$8,675	$82,939	$1,435	$212	$94,673
136	INT PULSE NEUT SOURCE PROG	$209	$1,255	$557	$488	$265	$2,775
137	HIGH ENERGY PHYSICS DIV	$4,917	$2,924	$5,735	$1,080	$1,020	$15,675
139	DIV OF EDUCATIONAL PROGRAMS	$1,679	$0	$0	$355	$432	$2,465
145	MATHEMATICS & COMPUTER SCI DI	$298	$382	$808	$1,874	$4,470	$7,833
146	CTD DIV - SCI APPL & RES	$25	$0	$0	$107	$0	$133
273	PHYSICAL RESEARCH PROGRAM ADM	$55	$0	$0	$27	$100	$182
		$12,281	$27,801	$123,347	$10,912	$6,716	$181,058
TOTAL		$218,062	$73,359	$203,398	$54,647	$73,108	$622,575

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 708)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-3270	n.a.	972-3270
X.25 Terminal Multiplexor 300 to 19.2K Bits Per Second(Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-2525	n.a.	972-2525
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-8700	n.a.	972-8700
Argonne TCP/IP Network 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-5588	n.a.	972-5588
Argonne MFEnet Dial-Up 300 or 1200 Bits Per Second	2-7920	n.a.	972-7920

Tymnet Commercial Packet-Switching Network
Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE
(All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.

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Argonne National Laboratory
Computing and Telecommunications Division
May and June 1990

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering eight classes and two seminars. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

CRAY X-MP ARCHITECTURE AND VECTORIZATION TECHNIQUES

Goals: To learn to optimize Fortran programs on the Cray X-MP/14 high performance computer. Topics include Cray X-MP architecture, vectorization, and optimization.

Length of Class: Two 3-hour sessions

Dates and Time: May 22, 1990 (Tuesday), 1:30 p.m. to 4:30 p.m.
May 24, 1990 (Thursday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Instructors: Tom Canfield
Pete Bertoncini

INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals: To develop an overview of available computing facilities and services provided by CTD.

Length of Class: One 3-hour session

Date and Time: June 7, 1990 (Thursday), 1:30 to 4:30 p.m.

Location: Building 221, Room A-261

Suggested Reading: *Guide to Computing at ANL* (ANL/TM 336)
Recommended Documentation for Computer Users at ANL (ANL/TM 379)
Guide to Telecommunications at ANL (ANL/TM 422)

Instructor: Fred Moszur

INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

Goals: To learn to use Wylbur, an interactive system that provides a convenient interface for IBM MVS batch processing. To learn about the IBM MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for IBM batch execution.

Length of Class: One 3-hour session

Date and Time: June 12, 1990 (Tuesday) 9:00 a.m. to 12:00 noon.

Location: Building 221, Room A-261

Suggested Reading: *SLAC Wylbur Tutorial*
OBS Wylbur Reference Manual

Instructor: Mike Thommes

USING CMS ON IBM 3270-COMPATIBLE DISPLAY TERMINALS

Goals: To learn to use CMS with an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or a line-oriented terminal capable of using the Hydra Protocol Converter to send and receive electronic mail; to write documents and memos; to organize information in files; to create program, text, and data files; to manipulate files with the editor; to invoke programs like statistical and graphic packages; to get printed reports; and to use CMS and Xedit computer-based training courses to further self-study.

Length of Class: One 3-hour session

Date and Time: June 12, 1990 (Tuesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Suggested Reading: *IBM VM System Product*: *CMS Primer* (SC24-5236)
CMS at ANL (ANL/TM 423)

Instructor: Pete Bertoncini

PROGRAMMING IN VAX/VMS

Goals: To learn to use the VAX/VMS system. This class will include VAX Fortran programs, suggestions for writing basic DCL command procedures (including a LOGIN.COM), the usage of the VMS system debugger and the interprocess communications features, and an overview of the aspects of VMS internals affecting program performance.

Length of Class: One 3-hour session

Date and Time: June 19, 1990 (Tuesday), 9:00 a.m. to 12:00 noon.

Location: Building 221, Room A-261

Instructor: Dave Lifka

INTRODUCTION TO VAX/VMS

Goals: To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Date and Time: June 14, 1990 (Thursday), 9:00 a.m. to 12:00 noon.

Location: Building 221, Room A-261

Instructor: Dave Lifka

INTRODUCTION TO UNICOS

Goals: To learn the basics of the Cray UNICOS file system, space management, and shell programming, as well as basic Unix commands. To learn how to use the Network Queueing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the IBM MVS and VAX/VMS front-end stations.

Length of Class: Two 3-hour sessions

Dates and Time: June 19, 1990 (Tuesday), 1:30 p.m. to 4:30 p.m.
June 21, 1990 (Thursday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Suggested Reading: *A Practical Guide to UNIX System V* (0-8053-8915-6)
UNICOS Primer (SG-2010)

Instructor: Tom Canfield
Pete Bertoncini

USING DIRECTORY MANAGER ON THE VAX 8700 COMPUTER

Goals:	To learn to use the VMS Directory Manager utility. Directory Manager gives users a visual representation of their directory structure and allows users to work with their files and directory structure more easily.
Length of Class:	One 1-hour session
Date and Time:	June 15, 1990 (Friday), 9:00 to 10:00 a.m.
Location:	Building 221, Room A-261
Instructor:	Ken Greenlee

SAS: AN OVERVIEW OF STATISTICS, GRAPHICS, AND REPORTING CAPABILITIES

Goal:	To learn about the various pieces of the SAS Software System available on the IBM MVS and CMS operating systems, on the VAX 8700 VMS operating system, and for IBM Personal Computers. To learn how you can use the available procedures to do your work (report writing to simple statistics to complex 3-D analytical, graphical output).
Length of Seminar:	One hour
Date and Time:	June 26, 1990 (Tuesday), 9:00 a.m. to 10:00 a.m.
Location:	Building 221, Room A-261
Instructor:	Mike Thommes

TELLAGRAF: AN OVERVIEW OF ITS GRAPHICS CAPABILITIES

Goal:	To learn the capabilities of the CA-Tellagraf interactive software that is capable of creating line, plot, bar, table, and word charts easily while retaining full control over the plot characteristics and data values.
Length of Seminar:	One hour
Date and Time:	June 28, 1990 (Thursday), 9:00 a.m. to 10:00 a.m.
Location:	Building 221, Room A-261
Instructor:	Mike Thommes

COMPUTER-BASED TRAINING COURSES

CTD currently offers 37 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	**Course Title**
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH	Introduction and Advanced Concepts of Xedit

CRWTH CBT Courses

(Enter CBT "course name" at the CMS prompt.)

General Data Processing Courses

DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center

Application System Courses

ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS

CMS Courses

CMS	Using CMS
XEDIT	Using XEDIT

SAS Courses

SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph

Tellagraf Course

TELLAGRA	Using TELLAGRAF

MVS Batch Courses

JCL	Introduction to Basic JCL

Basic Project Management Course

MANAGE	Project Management Concepts and Principles (see also ASPROJ)

TSO Courses

TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)

Miscellaneous Courses

(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting

COMPUTER-BASED TRAINING COURSES

CTD currently offers 37 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH	Introduction and Advanced Concepts of Xedit

CRWTH CBT Courses

(Enter CBT "course name" at the CMS prompt.)

General Data Processing Courses	
DPINTRO	Introduction to Data Processing
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Application System Courses	
ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS
CMS Courses	
CMS	Using CMS
XEDIT	Using XEDIT
SAS Courses	
SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph
Tellagraf Course	
TELLAGRA	Using TELLAGRAF
MVS Batch Courses	
JCL	Introduction to Basic JCL
Basic Project Management Course	
MANAGE	Project Management Concepts and Principles (see also ASPROJ)
TSO Courses	
TSOUSE	Using TSO
SPFUSE	Using ISPF
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Miscellaneous Courses
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ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting

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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

OLUME 21 NUMBER 6 JUNE 1990

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DEPOSITORY
JUN 28 1990
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

COMPUTING AND TELECOMMUNICATIONS DIVISION
Argonne National Laboratory
Building 221
Argonne, Illinois 60439-4822
FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Computer Network	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Data Communications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	A159	2-7329	B32848 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.1, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

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COMPUTING COMMENTS

IT'S OFFICIAL! IBM 3084 COMPUTER TO REPLACE TWO IBM 3033 COMPUTERS

After conducting a competitive procurement, ANL has selected an IBM 3084 Model QX computer as the replacement for two central IBM 3033 computers. The IBM 3084 computer will be configured with 4 Central Processing Units (CPUs), 96 megabytes of memory, and 48 channels (each with a 3 megabyte per second transfer rate). No changes are necessary in the MVS operating system to migrate to the new computer. However, the Computing and Telecommunications Division (CTD) will need to acquire and install the VM/HPO (Virtual Machine/High Performance Option) version of CMS before moving CMS users to the new computer.

The IBM 3084 with MVS should be available for users in June 1990. VM/HPO and CMS will be ready for users in July 1990. When the IBM 3084 is fully operational in July 1990, the IBM 3033 computers will be decommissioned after 12 years of faithful service.

Each processor of an IBM 3084 computer outperforms an IBM 3033 processor by as much as 50 percent. MVS and CMS users will experience better throughput for their current workload. CTD will be proposing to the Chief Financial Officer that rates for the IBM 3084 be set so that user job and interactive charges will be essentially the same as for work performed on the IBM 3033 computers. Throughout the installation of the IBM 3084, CTD will update the online NEWS to inform users of schedules and planned interruptions in MVS, Wylbur, CICS, TSO, and CMS services.

STORAGETEK 4480 CARTRIDGE TAPE DRIVE I/O PROBLEMS RESOLVED

Users of the StorageTek 4480 cartridge tape drives may have experienced intermittent input/output (I/O) errors when reading from or writing to the cartridge tapes. CTD traced the problem to a missing error recovery module in MVS. (CTD has now installed the required module, and the reliability of the cartridge tapes has improved.) No physical problem existed with the drives or the tape media.

COMPUTING CENTER FOURTH OF JULY HOLIDAY SCHEDULE

The CTD computing systems will remain in operation with at least one operator in attendance throughout the Fourth of July 1990 holiday to provide services comparable to the normal weekend services. A computer operator will be available to mount tapes; to check personal tapes in and out; and to process and distribute output from the IBM 3800 laser printer, the IBM 6262 and IBM 1403 impact printers, the CalComp 5835XP color plotter, and microfiche. CTD will not develop film (color or black and white) and will not copy microfiche until Thursday, July 5, 1990.

All interactive and batch computing will be available at weekend and holiday rates from 7:00 a.m. on Wednesday, July 4, 1990, until 7:00 a.m. on Thursday, July 5, 1990. For information about unexpected changes in service, call the Current System Status Recorded Message at extension 2-5466. For assistance in accessing scheduled services, call the computer operator on duty at extension 2-5421.

MATHEMATICS AND COMPUTER SCIENCE PARALLEL PROGRAMMING IN STRAND CLASS

The Mathematics and Computer Science Division is offering a one-day class (9:00 a.m. to 3:00 p.m., on Monday, June 18, 1990) on parallel Strand programming in the Argonne Advanced Computing Research Facility (ACRF) NeXT Laboratory (Building 203, Room C-110).

Strand is one of the first parallel programming tools to be available on a wide variety of parallel computers. This class will include (1) Strand basic concepts and fundamental programming techniques for developing portable parallel applications and (2) several in-depth case studies. In each case, a problem will be described, a parallel algorithm developed, and the implementation of the algorithm considered. The class will include hands-on exercises.

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address huml@mcs.anl.gov. The class is limited to 20 people.

MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASS

The Mathematics and Computer Science Division is offering a three-day class (9:00 a.m. to 4:30 p.m., on Wednesday, Thursday, and Friday, August 22-24, 1990) on how to write programs for the parallel computer systems in the Argonne Advanced Computing Research Facility (ACRF).

The class will cover the following topics: (1) parallelizing compilers, (2) using the VecPar interactive parallelization tool, (3) using the Argonne Monitor package, (4) programming the Butterfly TC2000, (5) programming the Distributed Array Processor (DAP), and (6) programming the Connection Machine-2. The class will include hands-on experience in writing and running programs on each machine. Participants will become familiar with the ACRF environment. Some knowledge of Unix and Fortran is necessary. To become familiar with Unix, refer to *A Practical Guide to UNIX System V* (0-8053-8915-6), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address huml@mcs.anl.gov. There is a $25.00 charge per person for universities, federal laboratories, and other government organizations and a $100 charge for commercial organizations.

COMPUTING CLASSES SCHEDULED FOR JUNE 1990

During June 1990, CTD will offer seven classes and two seminars. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Introduction to Computing Facilities and Services (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

Introduction to Wylbur for MVS Batch Computing (one 3-hour session) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the IBM MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit IBM MVS and Cray UNICOS batch jobs; and to review IBM MVS and Cray UNICOS batch output.

Using CMS on IBM 3270-Compatible Display Terminals (one 3-hour session) is for CMS users on an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or an ASCII terminal with the Hydra Protocol Converter. The class is for people who send or receive electronic mail; who organize information in files and obtain information from files; who create and modify data, programs, or text files; or who use applications packages such as Cuechart, SAS, Script, and Tellagraf. Everyone registering for the CMS class must have a VM/SP account before attending the class. To request an account, contact Account Services (Building 221, Room A-147, extension 2-5425).

Introduction to VAX/VMS (one 3-hour session) is for first-time VAX/VMS users who need an overview of the features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up sub-directories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to EVE." Everyone registering for this class should request an account on the VAX 8700 before attending the class to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

Using Directory Manager on the VAX 8700 Computer (one 1-hour session) acquaints users with the VMS Directory Manager utility. The Directory Manager gives users a visual representation of their directory structure and allows users to work with their files and directory structure more easily.

Programming in VAX/VMS (one 3-hour session) acquaints VMS users with features of VMS. Topics include programming VAX Fortran; writing DCL (Digital Command Language) procedures; using the VMS system debugger, the runtime library, and system services; and reviewing VMS internals.

Introduction to UNICOS (two 3-hour sessions) is for new users who want basic information on UNICOS on the Cray X-MP/14 high-performance computer. The class covers introductory material on the Unix file system, space management, and shell programming and how to submit jobs and to manage Cray files from the IBM MVS front-end stations or from scientific workstations using Transmission Control Protocol/Internet Protocol (TCP/IP).

SAS: An Overview of Statistics, Graphics, and Reporting Capabilities (one 1-hour seminar) looks at the various pieces of the SAS Software System available on the IBM MVS and CMS operating systems, on the VAX 8700 VMS operating system, and for IBM Personal Computers. We will explore the ways that you can use the many available procedures to help you do your work (from report writing to simple statistics to complex 3-D graphical output).

Tellagraf: An Overview of Its Graphics Capabilities (one 1-hour seminar) presents a "top-down" view of the CA-Tellagraf interactive graphics software available on the IBM CMS and VAX 8700 VMS operating systems. It is also available on some of the divisional VAXes. Users can easily create word charts, line plots, bar and pie charts, and tables while retaining full control over the plot characteristics and data values. You can draw your completed plots on a wide variety of graphics hardcopy devices.

COMPUTER PROTECTION

UPDATING COMPUTER APPLICATION SENSITIVITY INFORMATION

Each year the Laboratory updates the information on computer applications processed at the Laboratory and their sensitivity. Everyone at the Laboratory who runs applications on a personal computer or is responsible for one or more applications running on a computer workstation, divisional computer, or mainframe must complete or update a "Computer Application Sensitivity Questionnaire" for that personal computer or workstation.

The Divisional Computer Protection Program Representatives ask users to update the information reported from previous years and to complete new forms for personal computers or computer applications not previously reported. Then the Representatives collect this information for the files of the Computer Protection Program Manager.

If you use a personal computer or manage a computer application on a larger computer and have not yet completed or updated the questionnaire, check with your organization's Computer Protection Program Representative. To find out who your representative is, check with your division or call the Computer Protection Program Manager, Jean Troyer, at extension 2-7440.

CMS NEWS

CMS EXECS FOR HANDLING MAIL WHILE YOU ARE AWAY

While you are away from the Laboratory (such as on vacation or travel), execs are available in CMS on the system Y minidisk to save or transfer incoming electronic mail and files before they are deleted from your reader after seven days. The exec, VACATION EXEC, will place your electronic mail in a file named VACATION NOTEBOOK. This exec will place regular files on your minidisk, each with a unique filename of the form:

```
yyddd nnn
```

where "yy" is the last two digits of the current year, "ddd" is the three-digit day of the year, and "nnn" corresponds to the order of file creation on that day.

You should have sufficient space on your minidisk to hold the volume of electronic mail and files you receive during your absence. To request an increase in your minidisk space, contact Account Services (Building 221, Room A-147, extension 2-5425). After you process the electronic mail and files received during your absence, have Account Services decrease your minidisk space. Failure to provide sufficient space on your minidisk may result in the system purging your reader files during your absence.

To invoke the VACATION exec automatically, use the VMSCHEDULE software product in CMS:

```
VMSCHED SCHEDULE id VACATION (AT hh:mm AGAIN DAILY)
```

where "id" is the name you assign to identify the request (maximum eight alphanumeric characters) and "hh:mm" is the time of day you want the exec to run.

Another locally developed exec, TRANSRDR EXEC Y, transfers any incoming mail and files to another CMS user, a VAX/VMS user, or any address on the BITnet network. To invoke the TRANSRDR exec automatically, use the VMSCHEDULE software in CMS:

```
VMSCHED SCHEDULE id TRANSRDR userid AT node
     (AT hh:mm AGAIN DAILY)
```

where "id" is the name you assign to identify the request (maximum eight alphanumeric characters), "userid" is the user you want to receive your mail, "node" is the user's node, and "hh:mm" is the time of day you want the exec to run.

To inquire about a scheduled exec, enter:

```
VMSCHED QUERY id (LONG)
```

To cancel a scheduled exec, enter:

```
VMSCHED CANCEL id
```

where "id" is the name you assign to identify the request (maximum eight alphanumeric characters).

NOTE: Your PROFILE EXEC may cause the VACATION and TRANSRDR execs to fail. To avoid this failure, rename your PROFILE EXEC file (for example, PROFILE TEMP or PROFILE1 EXEC). After you have returned from travel or vacation and have canceled your VACATION or TRANSRDR exec request, rename the file PROFILE EXEC again.

PROFS DOCUMENT COMPOSITION FACILITY TO BE REMOVED

CTD has removed the Document Composition Facility (DCF) formatting capability from the IBM Professional Office System (PROFS) with the intent of removing DCF from the CMS system. CTD originally acquired the DCF product to evaluate the word processing capabilities of PROFS. CTD's position has been to encourage the use of PROFS in CMS for electronic mail and calendars, but not necessarily for word processing. CTD believes that very few, if any, PROFS users at ANL use its document processing features.

Waterloo Script, which works with DCF commands and documents, will continue to be available in CMS. PROFS users or other CMS users who believe that their work will be adversely affected by removing the DCF product should contact the User Services Manager at extension 2-7419.

CRWTH CBT COURSES IN CMS TO BE DISCONTINUED

An examination of the usage of CRWTH computer-based training courses in CMS reveals that the frequency of usage has declined from the previous year. Since the level of usage does not justify the cost of providing this service, CTD does not plan to renew the CRWTH license.

Users who feel that there is more value in the CRWTH courses than is reflected in the usage statistics should call the User Services Manager at extension 2-7419.

CRAY NEWS

CTD EXPERIMENTS WITH FAIR SHARE SCHEDULER

The installation of UNICOS 5.0 on the Cray X-MP/14 has involved many new features and functions that CTD has been gradually installing. One of these features, the Fair Share Scheduler, allows the CPU resources of the Cray to be allocated on a per-group basis in a more controlled and predictable manner.

CTD has installed the Fair Share Scheduler as an experiment (1) to allocate better the resources of the Cray between the Theoretical Chemistry Group (TCG) and the other users of the Cray and (2) to gain experience with the Fair Share Scheduler in anticipation of workload saturation on the Cray as the fiscal year-end approaches.

Currently, only two groups have been defined for the Fair Share Scheduler: TCG and GENERAL. The CPU resources have been divided among these two groups according to guidelines previously established.

With the experience and information gained from allocating the machine resources among two groups, CTD will be in a better position to extend the Fair Share Scheduler capabilities. By dividing the GENERAL group into finer subdivisions (possibly by ALD groupings), CTD will be able to allocate the Cray resources equitably to all users as the workload increases to the saturation level. As the fiscal year-end approaches, CTD will discuss additional options for Fair Share scheduling with the Computer Users Group.

MANAGEMENT INFORMATION SYSTEMS

INTEGRATED FINANCIAL SYSTEM UPDATE

In April 1990, a pilot group of the Integrated Financial System (IFS) report users tested the IFS Information Organizer (IO) system. Based on the test group's suggestions, the IFS Project Team made changes to the IO system. Currently, the system allows users to maintain their own or others' report selection criteria (including adding new report requests, changing existing selection criteria, deleting report requests, cloning new reports from existing reports, changing report output characteristics, and submitting reruns and ad hoc runs of reports). In May 1990, the Team conducted classes for the Laboratory's financial system users to teach them how to operate the IO system. In June 1990, the Team will add additional capabilities to the IO system to allow users to view the IFS chart of accounts, work project, and service request data. The IO test group will test the additional features before the Team releases them to all the financial users.

In April 1990, the IFS Project Team processed 100,000 extra Automated Materials/Payables System (AMPS) transactions to close out purchase documents, thereby eliminating their continued appearance on user reports. To further clean up the data appearing on users' financial reports, the Team removed all records with encumbrance or commitment amounts less that $200 with no recent activity. Also, the Team developed and processed a program to apply a retroactive fringe rate rebate. The Team continued work on developing a Customer Information Control System (CICS)-based system to handle data rejected from IFS. Discussions continue on determining how paid absence time will be reported and on the requirements for a new Laboratory-wide budgeting system.

Recently, Management Science America, Inc. (MSA), the vendor for ANL's IFS financial software, was acquired by Dun & Bradstreet (D&B). Some years earlier, D&B had also acquired MSA's biggest competitor, McCormick & Dodge (M&D). The combined MSA and M&D companies (under D&B) control about 56 percent of the mainframe applications software market. D&B Software will maintain the M&D and MSA systems until both products are replaced with new Systems Application Architecture (SAA)-compliant software in a few years. The government version of the MSA financial software had been known as "Fred." The new release of this software is called Management Analysis and Response System/Government (MARS/G). In June and July 1990, the Project Team will install the new release of the software. Among numerous enhancements, this new release will allow the Team greater flexibility in user report development.

Progress on all phases of the IFS project will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

NOTE: Users who have their IFS report output distributed in the bins in Building 221, Room A-134, should pick up their IFS report output as soon as possible. After approximately five days, Computer Operations personnel move the output to the shelves across from the bins to make room for newer output. CTD discards the output on those shelves after three or four months.

PERSONAL COMPUTING AND WORKSTATIONS

KERMIT VERSION 3.01 FOR IBM PERSONAL COMPUTER NOW AVAILABLE

The MS-DOS Kermit 3.01 file transfer and terminal emulation program is now available for the IBM Personal Computer.

The new features of Kermit 3.01 include:

- Emulation of most features of the DEC VT320 terminal. VT320 is the default terminal type for Kermit 3.01.

- Sliding window packet protocol. This protocol increases efficiency during file transfer across long-distance, long-delay communication links (such as public data networks).

- Enhanced graphics commands in the Tektronix emulator 4010. Kermit 3.01 uses the most common cursor steering and line/screen erasure escape sequences of the American National Standards Institute (ANSI) text terminals, scaled to the text terminal's screen shape, so that users can mingle text, Tektronix, and Sixel graphics.

- Expanded storage for roll-back screens. If memory is available, Kermit 3.01 will allocate room for about 10 screens.

- Instantaneous screen rollback.

- New **REPLAY** command to replay a Kermit session log through the terminal emulators.

CTD distributes Kermit 3.01 containing locally developed commands that automate much of the login sequence for the Systems Network Architecture (SNA), the VAX cluster, the Customer Information Control System (CICS), and the Materials CATalog (MCAT). The commands only work onsite at Argonne and require an Asynchronous Communication Interface (ACI) or an Asynchronous Data Interface (ADI) modem with the Machine Keyboard Origination (MKO) option.

CTD distributes Kermit 3.01 with a program for the VAX users that allows the use of the NUMLOCK key as the VT-terminal gold key (see "VT-Terminal Keypad Definition for Kermit" in the August 1989 *Newsletter).* Key mappings for Hydra are also included with Kermit 3.01.

The *Kermit-MS Diskette for the IBM Personal Computer* and the *Kermit User Guide* are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

TELECOMMUNICATIONS NEWS

SIM3278 UNAVAILABLE AFTER CUTOVER TO IBM 3084

When the IBM 3084 computer is in production, the SIM3278 full screen emulation program will no longer be available. CTD has continued to provide SIM3278 but had discontinued the SIM3278 maintenance contract, since better alternatives for IBM full screen emulation have been available (for example, the Hydra Protocol Converter and tn3270 terminal emulation). CTD has no plans to resume maintenance to make SIM3278 available after the cutover to the IBM 3084 computer.

Users who need assistance in converting from SIM3278 to the Hydra Protocol Converter or other full screen emulation alternatives should contact the User Services consultants at extension 2-5405.

ANLVM-KNET ACCESS TO CMS TO BE DISCONTINUED

During the conversion to the IBM 3084 computer, CTD will disable the KNET communications software, and the following commands will no longer work:

```
telnet anlvm-knet.ctd.anl.gov
tn3270 anlvm-knet.ctd.anl.gov
```

A recent check of KNET usage indicates that it is infrequently used.

The preferred method for the Transmission Control Protocol/Internet Protocol (TCP/IP) users to access the ANLVM CMS system is to use the command

```
telnet anlvm.ctd.anl.gov
```

or the command:

```
tn3270 anlvm.ctd.anl.gov
```

NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 3,110 computers at over 1,100 sites. Since the last *Newsletter* article in April 1990, the following universities and organizations have joined BITnet:

Agency for Industrial Science and Technology--Japan
Control Data Corporation--France
Institute for Plasma Physics--Milan
Interdepartmental Service Center for Data Elaboration (CISED)--Naples
Joiner Associates, Inc.--Madison, Wisconsin
Kansai University
Karolinska Institute--Stockholm
Kinjo Gakuin University
Memorial Sloan-Kettering Cancer Center--New York City
New School for Social Research--New York City
Oakland University--Rochester, Michigan
ONERA--Chatillon, France
Pan American Health Organization--Washington, DC
Pedagogical Institute--Nicosia, Cyprus
Rockhurst College--Kansas City, Missouri
Southern University A&M--Baton Rouge
Texas Women's University--Denton
United States Department of Agriculture Kansas City Office of Information Resources Management
University of Alicante--Spain
University of Costa Rica
University of Modena
University of Paris IX Dauphine
Warsaw University--Poland

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS, the VAX 8700, or MVS Wylbur):

```
HELP BITNET NODES
```

VAX/VMS NEWS

FORWARDING VMS MAIL

There are situations when you may want electronic mail sent to your VAX account to be forwarded to some other person or destination. Some users prefer to have someone attend to their electronic mail during periods of vacation or travel. Some users with VMS accounts on multiple systems elect to forward mail to a single account. To automatically forward your VMS electronic mail, invoke the VMS mail utility and set your forwarding address (node::userid). For example:

```
$ mail
MAIL>set forward anlcvl::B12345
MAIL>exit
$
```

To cancel the forwarding procedure, enter:

```
$ mail
MAIL>set noforward
MAIL>exit
$
```

VMS 5.3 UPGRADE DELAYED

VMS 5.3 was originally scheduled to be installed on the central VAX cluster on Monday, April 23, 1990. Currently, we are waiting for the Ingres Corporation to complete verification of two versions of the Ingres relational Data Base Management Systems (DBMS). Environmental Assessment and Information Sciences (EID) uses both versions of the Ingres DBMS.

CTD hopes to install VMS 5.3 on the central VAX cluster in early June 1990. Watch for the actual installation date in either the online NEWS or the July 1990 *Newsletter*.

For information on VMS 5.3, see "Plans To Upgrade to VMS 5.3" in the April 1990 *Newsletter*.

BITS & BYTES

IBM 6262 IMPACT PRINTER REPLACES OBSOLETE IBM 1403 PRINTERS

CTD has installed an IBM 6262-022 impact printer to replace the obsolete IBM 1403 impact printers and IBM 2821 printer control unit. The new printer will use inexpensive stainless steel print bands in place of more expensive print trains and will be less expensive to operate. The three-year lease-to-purchase contract for the new printer will not add any new costs.

The printer will continue to provide the two standard PN and TN character sets on the IBM printers and to print all the current forms. Initially, this printer will print only standard form output with either a PN or a TN character set. In a future *Newsletter,* CTD will announce any necessary changes to use this printer for nonstandard forms. Meanwhile, nonstandard form jobs will continue to print on the remaining IBM 1403 printer.

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new CTD documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing and Telecommunications Documents

The *ANL Site Response for the DOE FY1992 Information Technology Resources Long-Range Plan* (ANL/TM 477) provides data on these resources over an eight-year period consisting of the base year (FY1989), the current year (FY1990), the budget year (FY1991), the plan year (FY1992), and the out years (FY1993-FY1996). The document consists of four parts: Part 1, "Site Overview," describes the ANL Mission, the overall organization structure, the strategic approach toward meeting information technology needs, the planning process, the major issues, and the points of contact. Part 2A, "Information Systems Plans for DOE Contractors," defines the current and planned automated information systems associated with the management of ANL, the stewardship of its resources, and the provision of day-to-day general operations and services. Part 3, "Computing Resources Plan," defines the requirements, resources, acquisitions, and budget computing at ANL for FY1989 through FY1996. Part 4, "Telecommunications Plan," documents the existing and planned telecommunications resources required at ANL from FY1989 through FY1996.

Other Vendor Documents

The *NSPCG User's Guide* (CNA-216) describes the Non-Symmetric Preconditioned Conjugate Gradient (NSPCG) solver. NSPCG is a computer package currently installed on the Cray X-MP/14 that solves large sparse systems of linear equations by various iterative methods.

The *GNU Emacs Manual* documents the use and simple customizing of the Emacs editor, Version 18. The *Manual* is primarily a reference manual, but it can also be used as a primer. The Emacs editor is available for VMS and Unix systems.

The *GNU Emacs Reference Card* summarizes the commands for the Emacs editor, Version 18. The Emacs editor is available for VMS and Unix systems.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD MAY 1, 1990

Dotti Bingaman (Environmental Assessment and Information Sciences) opened the meeting at 3:05 p.m.

Update on IBM 3033 Replacement. Jerry Davison (Computing and Telecommunications) reported that the Laboratory has awarded the contract to Federal Computer Corporation for an IBM 3084 Model QX computer that will replace the IBM 3033 computers. (See "IBM 3084 Computer To Replace Two IBM 3033 Computers" in this *Newsletter.)*

Uncertain Future for CA-ISSCO Products on CMS. Fred Moszur (Computing and Telecommunications) stated that additional charges are necessary to use the software on the IBM 3084 computer that users currently use on the IBM 3033 computers (especially on CMS). These are one-time charges. There is a yearly fee of approximately 15 percent of the original license fee. The CA-ISSCO products (Disspla, Tellagraf, and Data Connection) cost over $51,000. About half of this is for Tellagraf. If the operating system were changed from VM/HPO to XA, there would be additional charges.

If CTD removed Tellagraf from the IBM 3084, users could use the VAX 8700 (which would also increase the resource usage on the VAX 8700).

Determining how to handle the upgrading and charging of software as the computers and operating systems change is still in progress. It may be necessary to limit the availability of certain software to specific platforms.

Cray Fair Share Scheduling Installed. Joe Midlock (Computing and Telecommunications) reported on the installation of the Cray Fair Share Scheduler. The goal is to allow the Chemistry Division to use 20 percent of the Cray time during the day, with 80 percent for the rest of the users. (See "CTD Experiments with Fair Share Scheduler" in this *Newsletter.)*

VAX Memory Upgrade and Effect on Performance. Rich Raffenetti (Computing and Telecommunications) reported that the VAX 8700 now has 128 megabytes of memory, resulting from a trade-in of old memory and the purchase of new memory. Since the installation, swapping of jobs has stopped. The extra memory has reduced the overhead, but new applications have been added at the same time. Therefore, response time is about the same. To get better response time, it may be necessary to go to a bigger VAX or to a more distributed computing system by adding used machines to the cluster. This response time will become critical if additional products are added to the system or the VAX becomes the only platform containing certain products.

Possible Changes in Cray-VAX Front-End Station. Barry Miller (Computing and Telecommunications) discussed plans for the Cray-VAX front-end station. There are several reasons to consider changes. The Laboratory now has a site-wide license for Multinet, so it is possible to achieve direct access to the Cray from the VAXes around the Laboratory. The Fiber Distributed Data Interface (FDDI) may also require the use of the low-speed channel currently used by the front-end station. Additional reasons include de-emphasizing of the station by the Cray, the slow performance of the station, and the annual costs and local upgrades. CTD is looking into a Multinet-Network File System (NFS) client license. CTD will test the new tools in mid-June 1990.

Default Routing through CICnet and ESnet. Bob McMahon (Computing and Telecommunications) discussed the routing of Transmission Control Protocol/Internet Protocol (TCP/IP) packets through the Consortium for Institutional Cooperation network (CICnet) and the Energy Sciences network (ESnet) routers. On April 20, 1990, all direct-connected ESnet nodes were changed to route through the ESnet router. All other nodes go out as before. Eventually, the links will be handled dynamically. If one link goes down, connections will be automatically switched to the other link.

In Phase II of the installation, the ESnet router will become the primary router. All CICnet direct-connected nodes will go through the old router. The changes should be transparent to users. CTD expects that the MFEnet I network will disappear sometime in June 1990.

Mathematics and Computer Science (MCS) Division Unix-Based Network. Gene Rackow (Mathematics and Computer Science) informed users about the MCS network. The system consists of approximately sixty Suns, twenty-five NeXTs, several parallel computers, eleven Apple LaserWriters, an Epoch file server (which is an optical disk system with a three-gigabyte Winchester cache), and numerous connections to outside networks. There is extensive E-mail usage and word processing with mathematical equations. All the MCS secretaries use Sun workstations. There is no physical user file system on the individual workstations. All files are stored on the network file system, which simplifies the control and back-up.

The meeting adjourned at 4:30 p.m.

Ken Miles, CUG Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD MAY 9, 1990

Bob Kampwirth (Materials Science) opened the meeting at 11:08 a.m. As befits a meeting on computer networks, the meeting had been announced through QuickMail. However, future meetings will use the old-fashioned paper notices in addition to QuickMail notification. If you did not get a QuickMail notice, you should contact Lee Wagar (Graphic Arts) to be sure that she has your correct computer mail address.

The topic for the meeting was "Networking the Mac at Argonne." Paul Steimle (Environmental Assessment and Information Sciences) and Rodney East (Materials Science) talked about the gamut of Apple Macintosh networking at Argonne, including configurations and options for electronic mail (Email), electronic file transfer, file sharing, and printer sharing.

Paul outlined the general LocalTalk (formerly AppleTalk) networking environment at Argonne. The trunk of this network is the Laboratory-wide Private Branch Exchange (PBX) Ethernet service. The LocalTalk zones (there are now 21 such zones at Argonne) are connected to Ethernet through a Kinetics FastPath Gateway or a Gator Box. Since LocalTalk allows only 32 nodes and has a maximum range of 1,000 feet, Paul prefers to connect the Ethernet bridge to a PhoneNet Star Controller. This controller allows 12 LocalTalk branches, each with a maximum range of 3,000 feet. Paul reported that he is able to connect to and use both LocalTalk and Ethernet at the same time with his Apple Macintosh and an Ethernet board installed.

Paul reported that you can share files in a variety of ways on the Apple Macintosh. He felt that the TOPS system was becoming less popular because of file transfer features in QuickMail, but still retained its appeal to users who need to share files between Unix, MS-DOS, and Apple Macintosh platforms. AlisaShare allows sharing by using a VAX and making it an AppleShare file server. AppleShare normally runs on a dedicated Apple Macintosh. Paul saw file transfer being done on the Apple Macintosh via TOPS, QuickMail enclosures of any kind of Apple Macintosh file, and Timbuktu. Network printing is done directly from an Apple Macintosh by using LocalTalk or from a VAX by using AlisaTalk print services. While there are several Apple Macintosh mail programs, Paul thinks that CE QuickMail has become the *de facto* standard at Argonne. It can connect not only Apple Macintoshes but also PC-MS-DOS QuickMail, Unix-SMTP mail via GatorMail gateways, VAX/VMS-DECnet mail via the Alisa gateway, and ANL NJE mail can be forwarded via NJE hosts at Argonne. See Paul for details on how these mail systems are set up.

Paul talked about the use of a public domain program, NCSA Telnet 2.3 for use in establishing terminal sessions to TCP/IP hosts. It does a VT100 emulation, a Tektronix 4014 emulation, and a tn3270 emulation for use with IBM hosts (such as ANLVM). Others at the meeting pointed out that VersaTerm does a much better Tektronix 4014 emulation.

Rodney East talked about his use of CE QuickMail. He uses an Apple Macintosh SE with 4 megabytes of random-access memory (RAM) for the server. This machine has a 40 megabyte hard drive so that all the mail messages can be stored. People were asked to file their mail messages so that they are removed from the server more quickly. Each server can handle 254 users. Currently, there are 18 servers at Argonne with over 200 users. The new 2.2 version of QuickMail allows one to send mail from within Microsoft Word or Microsoft Excel. Everyone at Argonne should use this version of QuickMail. Rodney sends mail to himself to remind him of important meetings in the future (an interesting use of the delayed feature of QuickMail).

For the June 1990 meeting, Apple Computer will demonstrate AUX 2.0, the new Apple Macintosh interface to Unix.

The Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

The meeting adjourned at 12:20 p.m.

Ralph Leonard, Macintosh Users Group Secretary

WORKLOAD STATISTICS (MARCH 30 THROUGH APRIL 29, 1990)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	*END OF MONTH*	*ACTIVE DURING MONTH*
CMS	1,242	1,225	488
Wylbur	1,661	1,662	369
MVS TSO	57	57	16
CICS	1,661	1,662	97
MVS Batch	2,135	2,140	624
VAX/VMS	531	533	288
Cray	319	327	132
All Systems	2,135	2,140	956

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				*SESSION*	*CPU*
	PRIME	*NIGHT*	*WEEKEND*	*TOTAL*	*TIME (HRS)*	*TIME (HRS)*
INTERACTIVE						
CMS	11,282	2,807	1,987	16,076	38,202.3	116.29
Wylbur	7,666	275	321	8,262	8,393.8	10.13
MVS TSO	244	0	1	245	283.2	1.16
CICS	32	39	27	98	0.0	4.91
VAX/VMS	14,044	2,274	321	16,639	14,642.5	185.56
Cray	1,451	178	59	1,688	1,558.6	5.50
IBM BATCH						
Class U	9,731	2,019	1,058	12,808	n.a.	56.70
Class W	17,244	2,309	1,275	20,828	n.a.	188.57
Class X	0	505	6	511	n.a.	34.35
Class Y	0	0	179	179	n.a.	21.15
Nonmain	15,843	2,238	1,346	19,427	n.a.	0.00
Total	42,818	7,071	3,864	53,753	n.a.	300.77
CRAY BATCH						
u	1,451	178	59	1,688	n.a.	28.09
w	2,335	347	342	3,024	n.a.	237.81
x	168	233	98	3,523	n.a.	108.99
y	3,004	911	865	4,780	n.a.	265.67
Total	6,958	1,669	1,364	13,015	n.a.	640.56
VMS BATCH						
W BATCH	899	655	133	1,687	n.a.	61.47
X_BATCH	8	81	48	137	n.a.	177.31
Y_BATCH	1	3	57	61	n.a.	95.53
Total	908	739	238	1,885	n.a.	334.31

INPUT/OUTPUT

Lines Printed	
Local	59,032,933
Remote	47,716,420
Fiche	647,047
Cards Punched-Local Only	11,158
Tape Mounts	7,318
Microfiche Developed	30,396,451
Microfiche Frames Developed	647,047

GRAPHICS

	# OF JOBS	*# OF FRAMES*
CalComp Jobs	42	n.a.
Matrix 35mm Color	37	98
Matrix-8 x 10	14	14
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	16	176
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	0	0
16mm Color	1	8

DATA MANAGEMENT

Tapes Stored	24,474
New Tapes Saved	259
Tapes Released	361
Datasets Exported to Tape	2,744
Datasets Imported from Tape	429

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (MARCH 30 THROUGH APRIL 29, 1990)

	Monthly Totals		Scheduled			Unscheduled	
		Hardware	Software	Other	Hardware	Software	Other
			CMS				
All Shifts							
Interruptions	4.00	2.00	1.00	1.00			
Hrs Unavailable	2.33	2.16	0.05	0.11			
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions							
Hrs Unavailable							
MTF/Unscheduled							
			WYLBUR				
All Shifts							
Interruptions	9.00		3.00	2.00		4.00	
Hrs Unavailable	15.93		4.55	9.25		2.13	
MTF/Unscheduled	182.01					182.01	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	3.00					3.00	
Hrs Unavailable	1.53					1.53	
MTF/Unscheduled	83.48					83.48	
			MVS TSO				
All Shifts							
Interruptions	7.00		3.00	2.00		2.00	
Hrs Unavailable	14.65		4.55	9.25		0.85	
MTF/Unscheduled	364.67					364.67	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00					1.00	
Hrs Unavailable	0.25					0.25	
MTF/Unscheduled	251.75					251.75	
			JES3				
All Shifts							
Interruptions	8.00		3.00	2.00		3.00	
Hrs Unavailable	14.78		4.50	9.25		1.03	
MTF/Unscheduled	243.07					243.07	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00					2.00	
Hrs Unavailable	0.80					0.80	
MTF/Unscheduled	125.60					125.60	
			CICS				
All Shifts							
Interruptions	2.00					2.00	
Hrs Unavailable	1.13					1.13	
MTF/Unscheduled	371.43					371.43	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00					2.00	
Hrs Unavailable	1.13					1.13	
MTF/Unscheduled	125.43					125.43	
			VAX/VMS (VAX 8700)				
All Shifts							
Interruptions	6.00		2.00	1.00		2.00	1.00
Hrs Unavailable	3.58		1.36	1.30		0.65	0.26
MTF/Unscheduled	246.80					370.20	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	4.00			1.00		2.00	1.00
Hrs Unavailable	2.21			1.30		0.65	0.26
MTF/Unscheduled	83.26					124.89	
			CRAY				
All Shifts							
Interruptions	9.00	4.00	3.00	1.00		1.00	
Hrs Unavailable	18.01	12.06	5.25	0.33		0.36	
MTF/Unscheduled	725.98					725.98	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00					1.00	
Hrs Unavailable	0.36					0.36	
MTF/Unscheduled	251.63					251.63	

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (MARCH 30 THROUGH APRIL 29, 1990)

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
	ADVANCED PHOTON SOURCE						
130	ADVANCED PHOTON SOURCE DIV	$1,691	$82	$0	$615	$467	$2,855
272	ADVANCED PHOTON SOURCE	$75	$0	$0	$15	$13	$103
341	APS ACCELERATOR PHYSICS	$364	$3,543	$16	$179	$60	$4,163
343	APS LINAC	$0	$1,151	$0	$70	$0	$1,221
344	APS RF	$13	$0	$0	$8	$0	$21
345	APS VACUUM	$4	$3,387	$0	$131	$1,217	$4,740
347	APS CONTROLS	$68	$2	$0	$1	$27	$98
348	APS MAGNETS	$83	$0	$0	$1	$3	$87
349	APS POWER SUPPLIES	$49	$0	$0	$3	$23	$75
350	APS DIVISION MANAGEMENT	$0	$0	$0	$0	$0	$0
351	APS INSERTION DEVICES	$116	$318	$0	$45	$174	$652
353	APS BEAM LINE INSTRUMENTATION	$21	$0	$0	$0	$0	$21
360	APS CONVENTIONAL FACILITIES	$20	$1	$0	$0	$31	$52
361	APS PROJECT DIRECTION	$13	$0	$0	$0	$0	$13
362	APS MANAGEMENT GENERAL	$17	$0	$0	$0	$0	$17
SUBTOTAL		$2,534	$8,484	$16	$1,068	$2,015	$14,118
	ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	BIO & MED RES DIV	$1,706	$1,937	$254	$1,026	$900	$5,823
125	TECHNOLOGY TRANSFER CENTER	$100	$0	$0	$2	$118	$220
149	ENVIROMMENTAL RESEARCH DIV	$1,658	$433	$1,063	$862	$510	$4,526
155	ENERGY SYSTEMS DIVISION	$15,297	$1,333	$5,474	$1,486	$2,458	$26,048
165	ENV ASSESS & INFO SCI DIV	$10,395	$16,528	$6,943	$2,996	$4,477	$41,339
174	ENER/ENV/BIO PROG DIR	$16	$0	$0	$0	$100	$116
246	ES-NAT'L ENERGY SOFTWARE CTR	$182	$0	$0	$912	$666	$1,761
274	ENER/ENV/BIO RES PROG ADM	$80	$0	$0	$0	$100	$180
SUBTOTAL		$29,434	$20,232	$13,734	$7,283	$9,329	$80,012
	ENGINEERING RESEARCH						
102	EBR-II PROJECT-ANL WEST	$1,779	$23	$69	$322	$138	$2,332
107	CHEMICAL TECHNOLOGY DIVISION	$590	$115	$1	$1,197	$482	$2,385
112	REACTOR ANAL & SAFETY	$14,609	$498	$7,753	$6,539	$3,855	$33,254
114	MATLS & COMP TECH DIV	$4,048	$2,850	$779	$2,675	$1,258	$11,611
115	ENGINEERING PHYSICS DIVISION	$35,808	$22,158	$63,275	$10,180	$10,477	$141,897
117	APPLIED PHYSICS-ANL WEST	$1,786	$2	$8,968	$310	$389	$11,456
118	REACTOR EXP & EXAM DIV	$2,384	$513	$4	$245	$304	$3,450
119	ANALYTICAL LABORATORY ANL-WES	$0	$0	$0	$0	$100	$100
171	ENGRG RES PROG DIR	$4	$0	$0	$0	$105	$109
178	FUSION POWER PROGRAM	$0	$0	$0	$0	$2	$2
197	SPECIAL PROJECTS OFFICE	$515	$3	$0	$16	$139	$673
211	ENGINEERING PHYSICS DIVISION	$110	$16	$0	$1	$2,894	$3,020
269	CHEM TECH DIV-ANALYTICAL CHEM	$87	$0	$0	$16	$103	$206
271	ENGRG RES PROG ADMIN	$114	$0	$0	$2	$100	$216
SUBTOTAL		$61,834	$26,179	$80,849	$21,502	$20,347	$210,711
	PHYSICAL RESEARCH						
105	MATERIALS SCIENCE DIVISION	$2,013	$10,531	$51,107	$3,023	$645	$67,319
109	PHYSICS DIV	$2,286	$1,852	$1,839	$1,888	$865	$8,730
120	CHEMISTRY DIV	$1,703	$10,272	$40,010	$947	$1,011	$53,943
136	INT PULSE NEUT SOURCE PROG	$131	$1,121	$376	$317	$164	$2,108
137	HIGH ENERGY PHYSICS DIV	$9,685	$2,545	$12,869	$1,216	$1,196	$27,511
139	DIV OF EDUCATIONAL PROGRAMS	$3,067	$0	$0	$1,737	$230	$5,034
145	MATHEMATICS & COMPUTER SCI DI	$308	$35	$687	$2,054	$4,320	$7,404
146	CTD DIV - SCI APPL & RES	$38	$1	$0	$139	$0	$178
273	PHYSICAL RESEARCH PROGRAM ADM	$51	$0	$0	$25	$100	$176
SUBTOTAL		$19,282	$26,356	$106,888	$11,346	$8,531	$172,403
	EXTERNAL						
751	FERMI NATIONAL LABORATORY	$855	$0	$0	$460	$405	$1,720
752	NAVY	$16,230	$0	$0	$1,324	$6,096	$23,651
753	MORGANTOWN ENERGY TECH CENTER	$17	$0	$0	$650	$0	$667
754	DEPARTMENT OF ENERGY AT ANL	$0	$0	$0	$0	$0	$0
755	ROCKWELL INTERNATIONAL	$3	$0	$0	$0	$0	$3
756	LOS ALMOS	$25	$0	$0	$0	$0	$25
760	ABBOTT LABORATORIES	$13	$28	$1,506	$17	$0	$1,563
763	GENERAL ELECTRIC COMPANY	$0	$1	$0	$107	$0	$108
765	WESTINGHOUSE HANFORD COMPANY	$1	$2	$4	$0	$0	$6
766	BECHTEL NATIONAL, INC.	$7	$124	$358	$295	$1	$785
767	NUMERICAL ALGORITHMS GROUP, I	$0	$0	$14	$0	$0	$14
771	PURDUE UNIVERSITY	$4	$0	$0	$0	$0	$4
774	BATTELLE	$0	$1	$0	$0	$0	$1
775	SMITHSONIAN	$0	$0	$0	$0	$3	$3
777	UNIVERSITY OF CHICAGO AT ANL	$51	$0	$0	$126	$100	$278
778	ARGONNE CREDIT UNION	$8	$0	$0	$0	$0	$8
779	UNIVERSITY OF ILLINOIS AT CHI	$8	$0	$0	$0	$0	$8
780	NEW BRUNSWICK LABORATORY	$17	$0	$0	$0	$0	$17
781	STATE OF ILL. DEPT. MENTAL HE	$0	$0	$0	$0	$7	$7
782	PACKER ENGINEERING	$0	$687	$0	$34	$420	$1,140
783	WEST VALLEY NUCLEAR SERVICES	$374	$0	$0	$23	$190	$587
784	SUPERCONDUCTING SUPER COLLIDER LAB.	$6	$548	$34	$88	$29	$705
SUBTOTAL		$17,621	$1,389	$1,916	$3,124	$7,250	$31,300

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
			OPERATIONS				
143	SUPP SERV DIV - ELEC DEPT	$60	$14	$0	$221	$149	$444
148	HUMAN RESOURCES-MEDICAL DEPT	$1,104	$0	$0	$116	$423	$1,643
150	SUPPORT SERV DIV - SPEC MATLS	$232	$0	$0	$43	$134	$409
161	TECH INFO SERVICES DEPT	$904	$2,131	$0	$590	$813	$4,437
201	OFFICE OF THE DIRECTOR	$227	$0	$0	$136	$143	$506
202	OFC OF CHIEF OPER OFCR	$27	$0	$0	$63	$100	$189
210	SUPP SERV DIV - CENT SHOPS	$169	$0	$0	$60	$114	$343
216	SUPPORT SERVICES DIVISION	$116	$0	$0	$78	$100	$294
222	PLANT FAC & SERV-LODGING FAC	$0	$0	$0	$0	$100	$100
232	SUPPORT SERV DIV - SECURITY	$392	$0	$0	$0	$190	$582
234	SUPP SERV DIV-HEALTH PHY	$261	$0	$0	$9	$156	$427
235	SUPP SERV DIV-ENV SAFE HEALTH	$1,198	$0	$0	$100	$540	$1,839
236	SUPPORT SERV DIV - FIRE DEPT	$0	$0	$0	$0	$100	$100
245	COMPUTING AND TELECOM DIV	$17,174	$0	$0	$3,130	$2,266	$22,570
247	COMP & TEL DIV - COM SERV	$1,746	$0	$0	$334	$1,047	$3,128
260	SUPP SERV DIV-GRAPHIC ARTS	$199	$230	$0	$63	$63	$555
275	OFFICE OF PUBLIC AFFAIRS	$476	$0	$0	$200	$121	$797
276	OFC PUB AF - MOTN PIC UNIT	$31	$0	$0	$0	$3	$34
296	TELECOM COST/RECOVERY	$0	$0	$0	$285	$0	$285
315	SUPP SERV DIV-MATLS & SERV	$2,906	$0	$0	$759	$524	$4,188
316	PLANT FAC & SERV-VEH MAINT	$0	$0	$0	$0	$159	$159
317	PLANT FAC & SERV-DRIV&RIG SER	$14	$0	$0	$0	$100	$115
319	SUPP SERV DIV-TRAVEL OFC	$7	$0	$0	$157	$100	$265
322	SUPP SERV DIV-PROCUREMENT	$43	$0	$0	$1	$102	$145
333	QA, ENVIR & SAFETY OFC	$268	$2	$0	$28	$237	$535
340	APS DIVISION MANAGEMENT	$0	$0	$0	$0	$0	$0
400	OFC OF CHIEF FIN OFFICER	$52,130	$0	$0	$1,735	$13,662	$67,528
401	ACCOUNTING	$0	$0	$0	$18	$100	$118
402	OFC CHIEF FIN OFCR-DATA ENTRY	$13	$0	$0	$125	$0	$138
403	BUDGET OFFICE	$0	$0	$0	$0	$100	$100
410	HUMAN RESOURCES DEPARTMENT	$11,687	$0	$0	$1,149	$1,290	$14,126
412	AFFIRM ACTION PROGRAM	$94	$0	$0	$40	$164	$298
501	PLANT FAC & SERV-BLDG MAINT	$36	$0	$0	$44	$140	$220
502	PLANT FAC & SERV-INSTALLATION	$0	$0	$0	$0	$100	$100
503	PLANT FAC & SERV-GROUNDS	$0	$0	$0	$0	$100	$100
504	PLANT FAC & SERV-CUSTODIAL	$0	$0	$0	$0	$100	$100
505	PLANT FAC & SERV-WASTE MGMT O	$64	$0	$0	$44	$100	$207
506	PLANT FAC & SERV-PLANT MGR OF	$468	$0	$0	$91	$132	$691
510	PLANT FAC & SERV-UTILITY SYST	$0	$0	$0	$0	$100	$100
512	PLANT FAC & SERV-FAC PLNG/ENG	$378	$0	$0	$4	$121	$503
530	SITE MGRS OFC-ANL WEST	$26	$0	$0	$0	$101	$127
531	PERSONNEL-ANL WEST	$82	$0	$0	$28	$100	$210
532	SPECIAL MATLS-ANL WEST	$1,172	$0	$0	$244	$400	$1,815
533	ACCOUNTING-ANL WEST	$0	$0	$0	$0	$100	$100
534	PURCHASING-ANL WEST	$0	$0	$0	$0	$100	$100
535	SECURITY - ANL WEST	$21	$0	$0	$0	$100	$121
536	SAFETY STAFF-ANL WEST	$184	$0	$0	$0	$102	$286
537	INFORMATION SERVICE-ANL WEST	$0	$0	$0	$0	$100	$100
538	MATLS HANDLING-ANL WEST	$93	$0	$0	$25	$100	$218
550	COMPUTER APPL & SERV - ANL-W	$123	$0	$0	$58	$100	$281
551	RAD MONITORING-ANL WEST	$8	$0	$0	$0	$100	$108
554	MACHINE SHOP-ANL WEST	$22	$0	$0	$1	$100	$123
556	SITE ENGRG-ANL WEST	$81	$0	$0	$13	$100	$193
557	PLANT SERVICES-AW-SERVICE REQ	$71	$0	$0	$5	$100	$176
558	PLANT SERVICES-AW-FUNCTION	$4	$0	$0	$0	$0	$4
559	FOOD SERVICES - ANL WEST	$0	$0	$0	$0	$100	$100
561	OFC OF QUALITY ASSURANCE - AW	$4	$0	$0	$0	$101	$105
563	TALENT RESOURCE POOL-ANL WEST	$0	$0	$0	$0	$100	$100
		--------	--------	--------	-------	--------	--------
SUBTOTAL		$94,315	$2,377	$0	$9,997	$25,997	$132,685
		========	=======	========	=======	=======	========
TOTAL		$225,019	$85,018	$203,404	$54,321	$73,468	$641,230

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	**Onsite (Illinois)**	**Onsite (Idaho)**	**Offsite (Area Code 708)**
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-3270	n.a.	972-3270
X.25 Terminal Multiplexor 300 to 19.2K Bits Per Second(Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-2525	n.a.	972-2525
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-8700	n.a.	972-8700
Argonne TCP/IP Network 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-5588	n.a.	972-5588
Argonne MFEnet Dial-Up 300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
Tymnet Commercial Packet-Switching Network Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.			

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	**VM/SP**	**VMS**	**MFEnet Gateway**
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.

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Argonne National Laboratory
Computing and Telecommunications Division
June 1990

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering seven classes and two seminars. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals:	To develop an overview of available computing facilities and services provided by CTD.
Length of Class:	One 3-hour session
Date and Time:	June 7, 1990 (Thursday), 1:30 to 4:30 p.m.
Location:	Building 221, Room A-261
Suggested Reading:	*Guide to Computing at ANL* (ANL/TM 336) *Recommended Documentation for Computer Users at ANL* (ANL/TM 379)
Instructor:	Fred Moszur

INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

Goals:	To learn to use Wylbur, an interactive system that provides a convenient interface for IBM MVS batch processing. To learn about the IBM MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for IBM batch execution.
Length of Class:	One 3-hour session
Date and Time:	June 12, 1990 (Tuesday), 9:00 a.m. to 12:00 noon
Location:	Building 221, Room A-261
Suggested Reading:	*SLAC Wylbur Tutorial* *OBS Wylbur Reference Manual*
Instructor:	Mike Thommes

USING CMS ON IBM 3270-COMPATIBLE DISPLAY TERMINALS

Goals:	To learn to use CMS with an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or a line-oriented terminal capable of using the Hydra Protocol Converter to send and receive electronic mail; to write documents and memos; to organize information in files; to create program, text, and data files; to manipulate files with the editor; to invoke programs like statistical and graphic packages; to get printed reports; and to use CMS and Xedit computer-based training courses to further self-study.
Length of Class:	One 3-hour session
Date and Time:	June 12, 1990 (Tuesday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Suggested Reading:	*IBM VM System Product: CMS Primer* (SC24-5236) *CMS at ANL* (ANL/TM 423)
Instructor:	Pete Bertoncini

INTRODUCTION TO VAX/VMS

Goals:	To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).
Length of Class:	One 3-hour session
Date and Time:	June 14, 1990 (Thursday), 9:00 a.m. to 12:00 noon
Location:	Building 221, Room A-261
Instructor:	Dave Lifka

USING DIRECTORY MANAGER ON THE VAX 8700 COMPUTER

Goals:	To learn to use the VMS Directory Manager utility. Directory Manager gives users a visual representation of their directory structure and allows users to work with their files and directory structure more easily.
Length of Class:	One 1-hour session
Date and Time:	June 15, 1990 (Friday), 9:00 a.m. to 10:00 a.m.
Location:	Building 221, Room A-261
Instructor:	Ken Greenlee

PROGRAMMING IN VAX/VMS

Goals:	To learn to use the VAX/VMS system. This class will include VAX Fortran programs, suggestions for writing basic DCL command procedures (including a LOGIN.COM), the usage of the VMS system debugger and the interprocess communications features, and an overview of the aspects of VMS internals affecting program performance.
Length of Class:	One 3-hour session
Date and Time:	June 19, 1990 (Tuesday), 9:00 a.m. to 12:00 noon
Location:	Building 221, Room A-261
Instructor:	Dave Lifka

INTRODUCTION TO UNICOS

Goals:	To learn the basics of the Cray UNICOS file system, space management, and shell programming, as well as basic Unix commands. To learn how to use the Network Queuing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the IBM MVS and VAX/VMS front-end stations.
Length of Class:	Two 3-hour sessions
Dates and Time:	June 19, 1990 (Tuesday), 1:30 p.m. to 4:30 p.m. June 21, 1990 (Thursday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Suggested Reading:	*A Practical Guide to UNIX System V* (0-8053-8915-6) *UNICOS Primer* (SG-2010)
Instructors:	Tom Canfield Pete Bertoncini

SAS: AN OVERVIEW OF STATISTICS, GRAPHICS, AND REPORTING CAPABILITIES

Goal:	To learn about the various pieces of the SAS Software System available on the IBM MVS and CMS operating systems, on the VAX 8700 VMS operating system, and for IBM Personal Computers. To learn how you can use the available procedures to do your work (report writing to simple statistics to complex 3-D analytical, graphical output).
Length of Seminar:	One hour
Date and Time:	June 26, 1990 (Tuesday), 9:00 a.m. to 10:00 a.m.
Location:	Building 221, Room A-261
Instructor:	Mike Thommes

TELLAGRAF: AN OVERVIEW OF ITS GRAPHICS CAPABILITIES

Goal:	To learn the capabilities of the CA-Tellagraf interactive software that is capable of creating line, plot, bar, table, and word charts easily while retaining full control over the plot characteristics and data values.
Length of Seminar:	One hour
Date and Time:	June 28, 1990 (Thursday), 9:00 a.m. to 10:00 a.m.
Location:	Building 221, Room A-261
Instructor:	Mike Thommes

COMPUTER-BASED TRAINING COURSES

CTD currently offers 37 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	**Course Title**
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH	Introduction and Advanced Concepts of Xedit

CRWTH CBT Courses

(Enter CBT "course name" at the CMS prompt.)

General Data Processing Courses

DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center

Application System Courses

ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS

CMS Courses

CMS	Using CMS
XEDIT	Using XEDIT

SAS Courses

SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph

Tellagraf Course

TELLAGRA	Using TELLAGRAF

MVS Batch Courses

JCL	Introduction to Basic JCL

Basic Project Management Course

MANAGE	Project Management Concepts and Principles (see also ASPROJ)

TSO Courses

TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)

Miscellaneous Courses
(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting

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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 21 NUMBER 7 JULY 1990

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AT URBANA-CHAMPAIGN

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COMPUTING AND TELECOMMUNICATIONS DIVISION
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The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

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Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	A159	2-7329	B32848 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.1, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

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COMPUTING COMMENTS

IBM 3084 COMPUTER IN PRODUCTION

On June 9, 1990, IBM delivered the new IBM 3084QX9 computer to replace the IBM 3033 computers. During June 10 through 15, the Computing and Telecommunications Division (CTD) tested the IBM 3084 computer. On June 16, the new machine began running production MVS jobs. At the end of June, CTD decommissioned the yellow IBM 3033.

In late June 1990, CTD began testing the VM operating system on the IBM 3084 computer. On July 14, we expect to run CMS in production on the IBM 3084 computer. By the end of July, we will decommission the red IBM 3033 computer.

Each of the four processors of the IBM 3084 computer is at least 50 percent faster than an IBM 3033 processor. Users will experience a reduction of CPU seconds and memory occupancy time with the IBM 3084 computer compared to our IBM 3033 computers. When MVS went production on the IBM 3084 computer, CTD received approval from the Chief Financial Officer to institute a 50 percent increase for the central processor rate and the memory occupancy rate, commensurate with the increased capabilities of the IBM 3084 computer. In July 1990, when CMS goes production on the IBM 3084 computer, these new rates will also apply.

ANL TO JOIN NSFNET

The National Science Foundation has selected Argonne National Laboratory as one of three new sites to receive a National Science Foundation network (NSFnet) node as part of an expansion of the NSFnet. ANL will be among the first sites to receive T3 transmission speed access (45 megabytes per second or approximately 5 million characters per second) to the planned coast-to-coast T3 upgrade of NSFnet.

NSFnet was established to provide researchers and educators access to state-of-the-art resources (including NSF-funded supercomputer centers, national databases, library collections, satellite data, and other advanced capabilities). Some other major NSFnet sites include the Cornell Supercomputing Center, the Georgia Institute of Technology, the Massachusetts Institute of Technology, the National Center for Supercomputing Applications, the Pittsburgh Supercomputing Center, and the San Diego Supercomputer Center.

The University of Chicago, the University of Illinois at Chicago, Fermilab, and Northwestern University jointly sponsored the Argonne proposal to NSFnet. These organizations already participate in the regional Consortium for Institutional Cooperation network (CICnet) with most other Big Ten universities. CICnet sites will benefit from the high-speed NSFnet connection at ANL.

In fall 1990, the ANL link to NSFnet will become operational. ANL has a long-standing active participation in national networks (including BITnet, ESnet, Internet, MFEnet, and HEPnet).

SEMINAR ON COMPUTER SIMULATION OF RIGID BODY DYNAMIC MECHANICAL SYSTEMS

On Wednesday, July 18, 1990, CTD and Reactor Analysis and Safety (RAS) will sponsor a seminar on "Computer Simulation of Rigid Body Dynamic Mechanical Systems." From 1:00 p.m. to 3:00 p.m., there will be demonstrations of two commercial programs: ADAMS (Automatic Dynamic Analysis of Mechanical Systems) from Mechanical Dynamics Inc. and DADS (Design and Analysis of Dynamic Systems) from CADSI. From 3:30 p.m. to 4:30 p.m., Ed Haug (Center for Computer-Aided Design at the University of Iowa) will talk about "Real-Time in the Loop Dynamic Simulation." See the schedule appended to this *Newsletter*.

COMPUTING CLASSES SCHEDULED FOR JULY 1990

During July 1990, CTD will offer two classes. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Introduction to Disspla CODEBOOK (one 3-hour session) is for VAX 8700 VMS and IBM CMS users interested in viewing their scientific, engineering, or administrative data graphically. CODEBOOK is a high-level interactive plotting language that creates prototype Fortran programs with Disspla graphics subroutine calls. You can create contour maps, vector flow diagrams, bar charts, curves, 3-D plots, GRFITI displays (that is, 2-D plots projected in 3-D space), and many more types of graphics with CODEBOOK. To attend this class and to participate in class exercises, you need an account on the VAX 8700 computer. To request an account, call Account Services at extension 2-5425.

Using NCSA Imagetool for Desktop Scientific Visualization (one 3-hour session) demonstrates NCSA Imagetool for viewing data as raster images. Attendees should have a working knowledge of Fortran or C on the computer of their choice. Topics include C and Fortran programs that create data files for NCSA Imagetool, data scaling and interpolation, different machines on which NCSA Imagetool runs (Sun, IBM Personal Computer, Apple Macintosh, or any workstation that runs the X Window System), image file transference to your workstation, and current output capabilities CTD offers.

CRAY NEWS

PLANS TO REPLACE THE CRAY SUPERCOMPUTER GATEWAY STATION

CTD has decided to replace the VAX/VMS Station software at the end of this fiscal year (September 30, 1990). In "CTD Considers Replacing VAX/VMS Supercomputer Gateway Station" in the April 1990 *Newsletter*, CTD described several factors involved in the decision to replace the Cray VAX/VMS Station.

A survey of current VAX/VMS Station users indicated a preference for the VMS environment for Cray job preparation, submission and output review, and postprocessing. CTD will provide tools that allow Cray users to continue these functions in a VMS environment. These functions will be provided with Transmission Control Protocol/Internet Protocol (TCP/IP) utilities and remote Network File System (NFS) access to Cray file systems.

CTD PROVIDES REPLACEMENT FOR VAX STATION CRAY CONTEXT COMMANDS

CTD has implemented a Digital Command Language (DCL) procedure to replace the VAX Station Cray context commands **submit**, **kill**, and **status**. This procedure uses the Transmission Control Protocol/Internet Protocol (TCP/IP) utilities **ftp** and **rsh** to submit jobs to the Cray Network Queuing System (NQS), to kill NQS batch jobs, to display the NQS queue status, and to return job output to a user's VAX. To use this procedure, enter the following command on the central VAX cluster:

```
$ cray == "@sys_public:cray_tcpip"
```

To learn how to use the **submit**, **kill**, and **status** commands, enter:

```
cray help
```

The HELP function also describes tool usage and configuration information. Several TCP/IP configuration files (three on the Cray [**.netrc**, **.rhosts**, and **.forward**] and one on your VAX [**ftp.init**]) are necessary for network operation. To build the required files automatically, enter:

```
cray configure
```

The CONFIGURE function eliminates the need for you to learn the required format for these files. This command file will also be available to system managers of other VAXes.

CTD PROVIDES NEW COMMANDS FOR CRAY FILE TRANSFER

CTD has developed two new commands for transferring files between the Cray X-MP/14 and remote Transmission Control Protocol/Internet Protocol (TCP/IP) nodes. These two commands, **tfetch** and **tdispose**, are named after the Cray Supercomputer Gateway Station commands **fetch** and **dispose**, respectively. However, unlike the Station commands, **tfetch** and **tdispose** will transfer files between the Cray and any node with **ftp** capability on the Laboratory-wide Ethernet or Internet. By using **tfetch** or **tdispose**, you could transfer files to a Multinet VAX, a Sun system, or other Unix system.

CTD developed **tfetch** and **tdispose** as replacements for the Station commands. They are scripts that internally execute **ftp** commands. You can execute them in either interactive or batch mode in any UNICOS shell.

The **tfetch** and **tdispose** command syntax is different from **fetch** and **dispose.** To display information on the required command syntax, enter **tfetch** or **tdispose** without any arguments. If a **fetch** statement in a UNICOS script is coded

```
$fetch mypgm.f anlcvl -t'mypgm.for'
```

then, to use **tfetch**, enter:

```
$tfetch mgpgm.f anlcvl mypgm.for
```

You can transfer both American Standard Code for Information Interchange (ASCII) and binary files. To transfer a binary file (for example, an executable image), append the word binary to the command. For example, enter:

```
$tfetch mgpgm.exe anlcvl mypgm.exe binary
```

All **tfetch** and **tdispose** file references are relative to your account's root directory on your remote node (for example, your VAX).

Because **tfetch** and **tdispose** rely on the **ftp** utility, you will need to have a **.netrc** file in your **$HOME** directory that contains an entry for each remote TCP/IP node you need to access. Since this entry contains the password of your remote node account, be sure to protect the **.netrc** file from group and world read/write access. If the network between the Cray and the remote node is not available when a **tfetch** or **tdispose** command begins execution, the command will temporarily suspend itself and will schedule retries until either the network becomes available or the default or user-provided time-out value has been reached.

We encourage Cray users to test the new **tfetch** and **tdispose** commands and to report any difficulties to the User Services consultants at extension 2-5405.

NETWORK SECURITY RISKS OF USING .RHOST

Cray UNICOS, like most Unix systems, provides a set of remote access capabilities that provide easy access from a remote system, such as a workstation. The capabilities include the **rlogin** and **rsh** commands. By having a **.rhost** file in your home directory on the Cray that lists your workstation name and userid, you can login by using **rlogin** or can execute commands via **rsh** without providing a password. This capability is very useful when writing script files, since you do not have to supply your Cray password.

However, the use of the **.rhost** capability presents a security risk. Your Cray account is only as secure as your workstation account. If others can use your workstation account, then they can **rlogin** to the Cray also. If you use the **.rhost** capability across many nodes, the security of all your accounts is only as good as the weakest security on any node. Several instances of stealing password files and guessing passwords (combined with the indiscriminate use of **.rhost** files) have been reported recently in the press. Several users at Argonne have been affected.

Although we still allow the use of **.rhost** files on the Cray, each user must weigh the risks involved. We recommend that you use it only from your everyday workstations. Review the security of your workstation with your system manager. Review your **.rhost** files on a regular basis and remove unused entries. Don't use **.rhost** from a system where you don't know the system manager or the security procedures (such as when using a system for a class or someone else's workstation). Have your **.rhost** files protected so only you can read or write them.

If you have sensitive applications on the Cray, do not use **.rhost.** When you use **.rhost** files, security is your responsibility!

GRAPHICS NEWS

DISSPLA (GENLEVEL 8907) REQUIRES RE-LINKING DISSPLA PROGRAMS

With the installation of the latest release of CA-Disspla (Genlevel 8907) on the VAX 8700 in April 1990, old Disspla executable files created by previous versions of Disspla now fail with the error messages:

```
>>>>ERROR LOADING SITE FILE INFORMATION IN QQDFUN
>>>>CONTACT YOUR LOCAL DISSPLA SYSTEM SUPPORT PERSON
```

A Disspla site file defines graphics drivers and Disspla license information. Computer Associates (CA) changed the format of the site file between Disspla Version 11.0 (the original version) and Version 11.0, Genlevel 8907. Any Disspla executable program that you created under the previous version of Disspla 11.0 expects the old Disspla 11.0 site file format.

Users can get old Disspla programs to run successfully by either:

1. Re-linking Disspla programs with the current production CA-Disspla library.

or

2. Issuing the command **SETUP DISSPLA/V=OLD** to establish the logical names defined for the previous Disspla version (especially the one that describes the CA-Disspla site information). This choice is only a temporary fix, since CTD will remove this old version on Monday, August 6, 1990.

CA recommends that users re-link Disspla programs whenever there is a major software upgrade, but not when these upgrades are maintenance upgrades. When CA releases future Disspla versions, we will announce in the *Newsletter* whether re-linking is necessary to run executable files successfully.

The features of CA-Disspla 11.0 include:

- Object rendering: you can now request complex geometric objects in wire frame, as well as fully shaded models.
- Processing of raster images: Disspla can read any digitally recorded raster image stored as a collection of pixels.
- Two-dimensional color-shaded contours.
- Three-dimensional and four-dimensional shaded surfaces.
- Enhanced control of contour levels.
- Greek and Hebrew shaded fonts.
- Run-time device selection of dynamically loaded device drivers.

For explicit usage of CA-Disspla 11.0 in CMS and MVS, refer to the addendum to the *ANL Supplement to the CA-Disspla User's Manual* (ANL/TM 467). Both ANL/TM 467 and its new addendum, along with the *CA-Disspla Users Manual Version 11*, Volume 1 and 2 (RG 99 DS 1101S), are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

MANAGEMENT INFORMATION SYSTEMS

INTEGRATED FINANCIAL SYSTEM UPDATE

In May and June 1990, the Integrated Financial System (IFS) Project Team conducted classes for the Laboratory's financial system users to teach them how to operate the IFS Information Organizer (IO) system. Also in June 1990, a pilot group of IFS users began to test the new inquiry capabilities of IO. The inquiry capabilities allow users to view the IFS chart of accounts, work project, and service request data. The pilot group will test these capabilities and make suggestions for improvements. The Project Team will incorporate their suggestions, conduct another set of classes to instruct Laboratory financial users in the use of the inquiry capabilities, and make them available to all IO users.

Progress on all phases of the IFS project will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

INTERACTIVE BUDGET SYSTEM TEST VERSION AVAILABLE

Starting in FY1991, the Laboratory will begin to track scientific paid absences in financial systems. A DOE audit has mandated the distribution of absence costs by using indirect methods. The Laboratory has agreed to comply with the audit recommendations. Members of the Argonne Budget Committee for Specifications (Mike Bartos, Dick Blogg, Paul Eident, Tom Fair, Mary Ellen Hennebry, Dean Strand, Bev Woelfer, and Bev Quinn) worked together to discuss the issues and to consider the alternatives that would have the least impact on Argonne while satisfying the paid absence requirement. The Office of the Chief Financial Officer (OCF) formalized a paid absence methodology. The Argonne Budget Committee reviewed it. Mike Bartos presented it at a recent Financial Applications Committee to Effect Telesis (FACET) meeting.

CTD Management Information Systems (MIS) enhanced the Interactive Budget System (IBS) to incorporate absence planning. When an absence account is input, IBS calculates an absence rate and distributes planned absence cost in the modeling process. The percent of effort planned for absences and a conversion factor are displayed. Additionally, you can request a new 80-character report to view online. An IBS environment is available to test planning for FY1991.

In June 1990, enrolled IBS users attended a class to learn the basic rules governing paid absence planning and the procedure to follow to test the new version of IBS. If you were unable to attend the class or need further information about the new version of IBS, call Darlene Thom at extension 2-7210 or Dick Blogg at extension 2-6865.

VAX/VMS NEWS

PLANS TO ACQUIRE MULTINET NFS FOR LABORATORY VAXES

Currently, Argonne has a sitewide license for the Multinet software product that allows VAX/VMS computers to use telnet, ftp, and other Transmission Control Protocol/Internet Protocol (TCP/IP) applications. A separate Multinet Network File System (NFS) license is necessary to enable the VAX 8700 and other VAX computers to access NFS file systems that reside on the Cray X-MP/14, other Unix computers, and NFS file servers.

CTD, with cost sharing funds from six divisions (Computing and Telecommunications, Chemical Technology, Advanced Photon Source, High Energy Physics, Electronics, and Materials Science), is ordering a sitewide license for a client NFS. When Multinet NFS is acquired and installed, the VAX 8700 users and other divisional VAX users will be able to access the Cray /n2 file system and file systems on Sun servers and other VAXes on the Laboratory-wide TCP/IP network.

RESPONSE MANAGER SOFTWARE IMPROVES INTERACTIVE SERVICE

Since April 1990, the interactive processing load on the Argonne central VAX 8700 has continued to increase such that the response time for simple tasks has become unacceptable. If this condition persists, the ultimate fix is to obtain more or faster processors. This article describes an interim measure that CTD has implemented to mitigate the situation.

CTD obtained a response management program from John Osudar of the Electronics Division and made revisions for the VAX 8700 environment. Since the beginning of June 1990, CTD has been running this software on the VAX 8700, which dynamically adjusts interactive process parameters to improve the system's interactive response. We believe there has been a marked improvement in the interactive response time for the average user. The program's effect is to schedule more frequently those interactive processes that are frequently interrupted for input/output (I/O). This procedure allows such processes to obtain a larger (and thereby fairer) share of the processor cycles than would otherwise be possible. Interactive programs that are CPU intensive and are seldom interrupted will experience slightly longer elapsed times. CTD is continuing to tune the system and to monitor the results of running this software.

We expect that the demand for VAX computing cycles will continue to outpace our current resources. Currently, CTD is weighing available alternatives for VAX cluster upgrades. We recommend adding a VAX 6000-410 with a vector processor to the cluster and distributing the software between the new machine and the VAX 8700 to divide the interactive workload. If you have a continuing or prospective need for our VAX services, we are interested in your input. Send electronic mail describing your needs to Mike Boxberger (B34540 at ANLVM).

BITS & BYTES

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new CTD documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing and Telecommunications Documents

The CERC Report: Results of the CERC Project with Recommendations for ANL Institutional Strategies in Advanced Scientific Computing (ANL/TM 475) describes the technical investigations and results obtained during the Center for Energy Research Computation (CERC) Project at Argonne and contains color visualizations of major CERC projects. The *Report* also uses the insights gained through this project into the future of advanced scientific computing at Argonne and other national laboratories to identify strategies that will help to position Argonne as a leading center of computational science and advanced computing.

A Plan for Scientific Visualization at ANL (ANL/TM 476) describes the topic of scientific visualization and a proposed scientific visualization plan for Argonne. Chapter 1, "An Overview of Scientific Visualization," describes the basic concepts of visualization and the benefits of scientific visualization to ANL scientists. Chapter 2, "Current Scientific Visualization at ANL," describes the current software and hardware configuration at ANL and provides descriptions and photographs of different visualization projects. Chapter 3, "Projected Plan for Scientific Visualization at ANL," describes the planned scientific visualization facility at ANL.

The *Manager's Guide to the Argonne NJE Emulator* (ANL/TM 479) describes the Argonne NJE Emulator, which allows VAX/VMS systems to communicate with IBM computers with the VM/RSCS, MVS/JES2, MVS/JES3, or VSE/POWER operating systems or either CDC computers having the NJEF product.

Using the Central VAX 8700 Computer at ANL (ANL/TM 455, REVISION 2) is an expanded reference document for users of the ANL central VAX 8700 computer. It provides information on how to use the computers in the central VAX cluster and how to use the VAX/VMS system for general interactive and batch use. This manual also describes how to use graphics packages and how to manage files on the central VAX 8700 computer. Readers should have some knowledge of VMS. When appropriate, this manual points to information available in vendor documents. This edition supersedes the second printing of *Using the Central VAX 8700 Computer at ANL* (ANL/TM 455, REVISION 1).

The new *Argonne National Laboratory Computing and Telecommunications Division* brochure (May 1990) provides an overview of the computing services available at Argonne.

The new *Cray Computing at Argonne National Laboratory* brochure (May 1990) describes the Cray UNICOS computing system environment at Argonne.

The new *Central VAX Computing at Argonne National Laboratory* brochure (May 1990) describes the central VAX cluster at Argonne.

Vendor Documents

The *University of Chicago Agreements with Personal Computer Vendors* (June 13, 1990) contains the latest lists of personal desktop computer discounts available through the University of Chicago to Argonne employees for both personal and Laboratory purchases.

IBM Microsoft Learning DOS (0855350) is an online course in a 5 1/4" floppy disk format that describes how to use Microsoft DOS for IBM Personal Computers and PC compatibles. *IBM Microsoft Learning DOS* replaces the *Learning DOS* 5 1/4" diskette.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD JUNE 5, 1990

Cy Adams (Engineering Physics) opened the meeting at 3:03 p.m.

Computer Usage. Doug Engert (Computing and Telecommunications) presented an update on the usage of the central computers. IBM batch and interactive computing is up slightly over last year's levels, but not enough to cause any capacity problems. On the other hand, the Cray and the VAX 8700 computer are working at their limits. In April 1990, users ran about 500 hours on the VAX 8700 computer and over 600 hours on the Cray. It is now difficult to get timely turnaround of batch jobs on the VAX 8700 computer; almost all work runs interactively. The VAX 8700 disks are full, but there is still adequate room on the Cray disks. The IBM disks are almost full.

For the last two months, the Chemistry agreement account has received close to its guaranteed Central Processing Unit (CPU) time (about 37 percent of the machine). This account tends to receive less than its guaranteed fraction during prime time but makes up for the shortfall on the weekends. In FY1991, the Chemistry agreement fraction drops to 10 percent for the whole year, but it is not clear at this time how this account will be applied month-to-month.

IBM 3084 Computer Status. Jerry Davison (Computing and Telecommunications) presented an installation schedule based on the anticipated June 9, 1990, delivery of the IBM 3084QX9 computer. CTD planned the schedule to accommodate the heavy computing load created by the monthly financial close. By Saturday, July 16, 1990, the IBM 3084 computer should be in full production, with both IBM 3033 computers decommissioned by July 28, 1990. CTD will partition the IBM 3084 computer into side A (MVS) and side B (VM/HPO); no JCL changes will be necessary. MVS will be brought up first, with early-morning (4:00 a.m. to 7:00 a.m.) user testing on several days in June 1990. Most of the work on the Virtual Machine/High Performance Option (VM/HPO) will be done in July 1990, after the June 1990 financial close. Official acceptance of the IBM 3084 computer will follow a successful 30-day test.

Each of the four processors on the IBM 3084 is approximately 50 percent faster than an IBM 3033 processor (we have three), which means that the IBM 3084 computer will provide approximately twice the CPU capacity of the IBM 3033 computers. CTD has proposed to the Laboratory's Chief Financial Officer that CPU-related rates be adjusted upwards to maintain the current level of recovery, but it is not known if such a rate change will be in effect when the machine becomes available for production. CTD will introduce two new system identifiers (SID) into the Komand database: 4A for MVS on the IBM 3084 computer and 4V for VM on the IBM 3084 computer.

Expected Impact of New Library System on the VAX 8700. Rich Raffenetti (Computing and Telecommunications) described some initial limited testing of the response of the new Library System. Currently, the database contains only book titles. A ten-minute elapsed-time session (which involved some keyword searches and included "think" time) required about 50 CPU seconds and 2,200 file input/outputs (I/Os). These observations suggest upper limits of several dozen sessions per hour. Shannon Savage (Technical Information Services) pointed out that when the database is complete, the CPU and I/O requirements will be greater and that both Technical Information Services and

CTD are concerned about the response that the system will provide. Shannon said that the schedule called for a demonstration of the system in July 1990 or August 1990 and dial-up access starting in October 1990.

KNET and SIM3278 Discontinued. Fred Moszur (Computing and Telecommunications) pointed out that two pieces of software currently in use will not be available on the IBM 3084 computer. KNET is a Transmission Control Protocol/ Internet Protocol (TCP/IP) interface available in VM. Since February 1989, CTD has been recommending that users use the IBM product instead; it appears that KNET is no longer used (see "ANLVM/KNET Access to CMS To Be Discontinued" in the June 1990 *Newsletter).* SIM3278 provides full-screen IBM 3270 emulation, but there are several alternatives available (NCSA telnet, tn3270, the Hydra Protocol Converter, and Kermit with keymapping files for the Hydra). There are a few SIM3278 users, and CTD is working with them to find suitable alternatives.

MFEnet Status. Bob McMahon (Computing and Telecommunications) reviewed the status of the ESnet backbone, the ESnet peering with National Science Foundation (NSF) regional networks, ESnet foreign links, and the plan for migrating ANL to MFEnet II from MFEnet. Across the country, most of the required T1 links are in place for ESnet. An ANL link to the Oak Ridge National Laboratory should be completed in June 1990, and a T1 link from AMES Research at Iowa State to ANL has been ordered. ESnet is peering with several NSF regionals (including BARRnet, CERFnet, SESQUInet, SURAnet, THEnet, and LOS NETOS). ESnet is planning to peer with CICnet, CREN/CSnet, MIDnet, NORTHWESTnet, NYSERnet, WESnet, and NEARnet.

IBM has installed a T1 link between CERN and Cornell/NSFnet (part of NYSERnet). A 64 kilobit per second (Kbps) satellite link connects Fermi to CERN for HEPnet usage. A fiber-optic replacement is planned. A 64 Kbps satellite link connects Fermi to Garching, West Germany. The link will be upgraded to use Cisco dual protocol routers from X.25 routers. A 64 Kbps link connects the Princeton Plasma Laboratory to Bonn, West Germany. This link is being upgraded to T1 for use by DOE, NASA, and NSF. The link will run IP, DECnet, and International Standards Organization (ISO)-IP. The connection at Bonn will allow access to the WIN network (which includes approximately 150 German Universities). A 512 Kbps trunk to Hawaii from the U.S. exists. Two 64 Kbps links between Hawaii-Todai/Tokyo and Hawaii-Keio exist. A third link between Hawaii and the ICOT Corporation is planned. These links use the IP protocol. Links to European countries (other than Germany) have yet to develop. Of course, BITnet is available to provide mail and file transfer to many nodes in Europe and the Far East.

Currently, ANL is running release 209 of the MFEnet software that uses both MFEnet I and MFEnet II protocols. Local users of netout, tell, and netty services should be able to continue to work without interruptions during the transition, but asynchronous users of the Network Access Processor (NAP) will have to make a change. NAP will vanish with the arrival of MFEnet II, and CTD will provide a TCP/IP terminal server to accommodate asynchronous terminals.

Installation Advisory Subcommittee Report. Dotti Bingaman (Environmental Assessment and Information Sciences) submitted a report on the Subcommittee meeting held on May 22, 1990. Jerry Davison gave a presentation similar to "IBM 3084 Computer Status" above. Fred Moszur revealed that some of the software packages (notably CA/ISSCO products) will be more expensive on the IBM 3084 computer. The Subcommittee members discussed the possibility of discontinuing Tellagraf on CMS, but decided that the VAX 8700 was so busy now that it would not offer an acceptable alternative for interactive graphics work. Barry Finkel (Computing and Telecommunications) plans to run some benchmark streams. The IBM 3084 computer should have approximately twice the capacity of the IBM 3033 computer; therefore, the CPU rates should be adjusted. The Subcommittee felt that CTD had planned the installation and cutover well. The Subcommittee will follow what is presented at the monthly CUG meetings and will meet again if a problem arises.

Computing Policy Committee (CPC) Meeting Report. Dotti Bingaman submitted a report on the Committee meeting held on May 17, 1990. Jean Troyer (Computing and Telecommunications) summarized DOE Order 1360.2A (relating to computer protection) and *Argonne's Statement of Compliance with DOE Order 1360.2A of the ANL Com-*

puter Protection Program (June 1990). Jean then described the *ANL Computer Risk Assessment and Protection Plans for Non-Sensitive Computers and the ANL Computer Summary Protection Plans for Sensitive Computers* (June 1990). The CPC approved these documents. Jean was asked about the status of the proposed DOE Order 1330.1C (which includes provisions that require the Laboratory to establish a central bureaucracy to prepare procedures, to monitor compliance, and to audit software development to provide quality assurance for all software development). The Laboratory has formally objected to DOE about these provisions. The CPC also went on record as objecting to these provisions.

Larry Price (High Energy Physics) summarized topics discussed at recent Networking Subcommittee meetings: (1) Argonne has installed and tested Fiber Distributed Data Interfaces (FDDIs) between Sun Servers in Building 362 and the Advanced Computing Research Facility (ACRF) in Building 221. The cost for installing a Laboratory-wide Fiber network is approximately $250,000. (2) Argonne has obtained a Multinet site license, and the software is being used on most of the VAXes. Argonne is investigating the replacement of "NJE services" by TCP/IP. (3) The Network Managers Working Group is preparing a database of nodes, addresses, managers, and locations. The Group is also working on a set of rules for connection of devices to the Laboratory-wide network. (4) Argonne is one of two sites still under consideration by the NSF for installation of an NSFnet node. A decision is expected within a month. Argonne is now an official member of CICnet. (5) Argonne will have three connections to ESNET: Fermi, Princeton, and Oak Ridge. (6) The Defense Advanced Research Projects Agency (DARPA) is planning a multi-gigabit-per-second network based on new technology. (7) The Subcommittee has discussed mechanisms for recovering costs related to networking but has found no easy solution. New procedures must be developed before the new budget-setting cycle begins. The CPC asked the Subcommittee to schedule a meeting with Larry Amiot (Computing and Telecommunications) and Mike Boxberger (Computing and Telecommunications) to discuss network costs and cost-recovery.

Hans Kaper (Mathematics and Computer Science) and Rick Stevens (Mathematics and Computer Science) described the DARPA/Intel Touchstone Project whose goal is to deploy a massively parallel machine capable of hundreds of Gflops. Argonne and others are forming a consortium to locate a 512 node machine capable of 40 Gflops at Caltech with a T3 (45 megabits per second) link to an 8 or 16 node machine at Argonne. Argonne's share will be $1,500,000. Hans stated that he has commitments for $600,000, and the balance can be raised. The Touchstone machine (based on Intel's i860 chip) will employ a mesh configuration that will permit utilization of many parallel algorithms. Various physical research divisions will design codes to run on this new machine.

Chuck Mueller (Computing and Telecommunications) announced that three of CTD's proposals for the State of Illinois Challenge Grants were selected: (1) The Advanced Software Development and Commercialization (ASDAC) Project is a joint proposal with the University of Illinois (Urbana) to adapt Argonne production codes to parallel environments and to demonstrate the commercialization potential of the software tools and codes. Funding for the first year is $270,000. (2) The Compute Illinois Project is a collaboration with the University of Illinois (Urbana and Chicago campuses) to transfer supercomputing technology to Illinois businesses through seminars, workshops, and pilot projects. Argonne will focus on pilot projects and will receive $100,000 for the first year. (3) The Challenge Fund will also contribute funds for a NSF contractor to install an NSFnet node at Argonne. Funding for the first of three years is $100,000. In all cases, funding for later years is dependent on legislative appropriation of funds for the Challenge Grant Program.

Dave Weber (Computing and Telecommunications) described FY1990 computer use and floors. He stated that the Laboratory has made floor assessments in early March 1990 for October 1989 through February 1990, because many cost centers did not meet their computing floor levels. The next assessments should be much lower because of saturated usage of the Cray and the VAX 8700 computer. In June 1990, CTD will lease and install a new IBM 3084QX9 computer. This machine has twice the CPU rating of our current IBM 3033 computers. Unless charging rates are modified, there could be an underrecovery of revenues and higher floor assessments.

The meeting adjourned at 4:25 p.m.

Cy Adams, Acting CUG Secretary

WORKLOAD STATISTICS (APRIL 30 THROUGH MAY 30, 1990)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,225	1,235	469
Wylbur	1,662	1,685	387
MVS TSO	57	57	15
CICS	1,662	1,685	135
MVS Batch	2,140	2,189	619
VAX/VMS	533	551	299
Cray	327	345	137
All Systems	2,140	2,189	967

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION	CPU
	PRIME	NIGHT	WEEKEND	TOTAL	TIME (HRS)	TIME (HRS)
INTERACTIVE						
CMS	11,418	2,492	1,842	15,752	37,858.2	123.27
Wylbur	7,511	237	300	8,048	8,240.9	8.32
MVS TSO	411	1	2	414	363.4	1.42
CICS	43	41	30	114	0.0	6.73
VAX/VMS	15,083	2,633	1,955	19,671	25,685.4	247.69
Cray	1,357	70	89	1,516	1,261.5	10.62
IBM BATCH						
Class U	9,819	1,914	1,025	12,758	n.a.	47.57
Class W	18,352	1,626	753	20,731	n.a.	144.18
Class X	0	505	6	511	n.a.	96.18
Class Y	3	1	1,541	1,545	n.a.	56.07
Nonmain	16,142	2,225	1,161	17,528	n.a.	0.00
Total	44,316	6,271	4,486	53,073	n.a.	344.00
CRAY BATCH						
u	1,357	70	89	1,516	n.a.	24.94
w	2,110	260	169	2,539	n.a.	259.17
x	120	177	54	351	n.a.	72.03
y	2,594	957	959	4,510	n.a.	284.72
Total	6,181	1,464	1,271	8,916	n.a.	640.86
VMS BATCH						
W_BATCH	439	306	193	938	n.a.	38.79
X_BATCH	7	63	30	100	n.a.	154.35
Y_BATCH	4	1	56	61	n.a.	13.70
Total	450	370	279	1,099	n.a.	206.84

INPUT/OUTPUT

Lines Printed	
Local	59,582,187
Remote	61,117,068
Fiche	45,356,393
Cards Punched-Local Only	7,712
Tape Mounts	7,271
Microfiche Developed	4,823
Microfiche Frames Developed	997,877

GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	65	n.a.
Matrix 35mm Color	122	294
Matrix-8 x 10	2	2
Matrix-Negative	1	2
FR80 Film Plots		
35mm Black/White/Unsprocketed	1	8
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	0	0
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	24,688
New Tapes Saved	293
Tapes Released	403
Datasets Exported to Tape	2,746
Datasets Imported from Tape	649

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (APRIL 30 THROUGH MAY 30, 1990)

	Monthly Totals		Scheduled			Unscheduled	
		Hardware	Software	Other	Hardware	Software	Other
			CMS				
All Shifts							
Interruptions	10.00	7.00	1.00		1.00		1.00
Hrs Unavailable	16.80	12.95	0.06		3.00		0.78
MTF/Unscheduled	363.60				727.20		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00						1.00
Hrs Unavailable	0.78						0.78
MTF/Unscheduled	275.21						
			WYLBUR				
All Shifts							
Interruptions	11.00	6.00	3.00		1.00	1.00	
Hrs Unavailable	23.30	19.58	2.73		0.53	0.45	
MTF/Unscheduled	360.35				720.70	720.70	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00				1.00	1.00	
Hrs Unavailable	0.98				0.53	0.45	
MTF/Unscheduled	137.50				275.01	275.01	
			MVS TSO				
All Shifts							
Interruptions	11.00	6.00	3.00		1.00	1.00	
Hrs Unavailable	23.30	19.58	2.73		0.53	0.45	
MTF/Unscheduled	360.35				720.70	720.70	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00				1.00	1.00	
Hrs Unavailable	0.98				0.53	0.45	
MTF/Unscheduled	137.50				275.01	275.01	
			JES3				
All Shifts							
Interruptions	11.00	6.00	3.00		1.00	1.00	
Hrs Unavailable	21.68	18.85	2.06		0.43	0.33	
MTF/Unscheduled	361.15				722.31	722.31	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00				1.00	1.00	
Hrs Unavailable	0.76				0.43	0.33	
MTF/Unscheduled	137.61				275.23	275.23	
			CICS				
All Shifts							
Interruptions	2.00				1.00	1.00	
Hrs Unavailable	1.10				0.60	0.50	
MTF/Unscheduled	371.45				742.90	742.90	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00				1.00	1.00	
Hrs Unavailable	1.10				0.60	0.50	
MTF/Unscheduled	137.45				274.90	274.90	
			VAX/VMS (VAX 8700)				
All Shifts							
Interruptions	3.00		2.00			1.00	
Hrs Unavailable	1.68		1.28			0.40	
MTF/Unscheduled	742.31					742.31	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00		1.00			1.00	
Hrs Unavailable	0.68		0.28			0.40	
MTF/Unscheduled	275.31					275.31	
			CRAY				
All Shifts							
Interruptions	5.00	3.00	2.00				
Hrs Unavailable	10.91	9.43	1.48				
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions							
Hrs Unavailable							
MTF/Unscheduled							

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (APRIL 30 THROUGH MAY 30, 1990)

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
	ADVANCED PHOTON SOURCE						
130	ADVANCED PHOTON SOURCE DIV	$1,793	$92	$0	$778	$500	$3,163
272	ADVANCED PHOTON SOURCE	$54	$0	$0	$22	$11	$86
341	APS ACCELERATOR PHYSICS	$341	$2,342	$0	$114	$61	$2,859
343	APS LINAC	$0	$1,211	$0	$88	$0	$1,299
344	APS RF	$25	$0	$0	$19	$0	$44
345	APS VACUUM	$4	$1,814	$0	$44	$90	$1,951
347	APS CONTROLS	$65	$2	$0	$0	$5	$72
348	APS MAGNETS	$88	$0	$0	$1	$1	$90
349	APS POWER SUPPLIES	$45	$0	$0	$2	$0	$47
351	APS INSERTION DEVICES	$93	$399	$0	$17	$109	$618
353	APS BEAM LINE INSTRUMENTATION	$21	$0	$0	$0	$0	$21
360	APS CONVENTIONAL FACILITIES	$14	$1	$0	$0	$0	$15
361	APS PROJECT DIRECTION	$60	$1	$0	$7	$3	$71
362	APS MANAGEMENT GENERAL	$17	$0	$0	$0	$0	$17
SUBTOTAL		$2,619	$5,862	$0	$1,092	$779	$10,353
	ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	BIO & MED RES DIV	$2,580	$2,317	$254	$1,540	$1,786	$8,477
125	TECHNOLOGY TRANSFER CENTER	$99	$0	$0	$5	$120	$223
149	ENVIROMMENTAL RESEARCH DIV	$2,380	$424	$4,054	$863	$817	$8,538
155	ENERGY SYSTEMS DIVISION	$15,804	$773	$7,941	$1,288	$2,043	$27,848
165	ENV ASSESS & INFO SCI DIV	$10,033	$20,635	$2,122	$2,985	$4,094	$39,870
174	ENER/ENV/BIO PROG DIR	$15	$0	$0	$0	$100	$116
246	ES-NAT'L ENERGY SOFTWARE CTR	$556	$0	$0	$868	$870	$2,295
274	ENER/ENV/BIO RES PROG ADM	$86	$0	$0	$0	$100	$186
SUBTOTAL		$31,554	$24,149	$14,372	$7,548	$9,929	$87,553
	ENGINEERING RESEARCH						
102	EBR-II PROJECT-ANL WEST	$2,339	$50	$104	$366	$110	$2,970
107	CHEMICAL TECHNOLOGY DIVISION	$700	$137	$0	$992	$479	$2,309
112	REACTOR ANAL & SAFETY	$18,906	$328	$8,869	$6,923	$3,929	$38,955
114	MATLS & COMP TECH DIV	$4,059	$5,404	$17	$2,964	$1,510	$13,954
115	ENGINEERING PHYSICS DIVISION	$34,014	$47,965	$84,473	$13,404	$10,241	$190,097
117	APPLIED PHYSICS-ANL WEST	$1,863	$2	$6,118	$203	$376	$8,562
118	REACTOR EXP & EXAM DIV	$1,618	$1,011	$4	$315	$308	$3,256
119	ANALYTICAL LABORATORY ANL-WES	$0	$0	$0	$0	$100	$100
171	ENGRG RES PROG DIR	$4	$0	$0	$0	$105	$109
197	SPECIAL PROJECTS OFFICE	$383	$2	$0	$10	$129	$524
211	ENGINEERING PHYSICS DIVISION	$111	$16	$0	$0	$2,894	$3,021
269	CHEM TECH DIV-ANALYTICAL CHEM	$76	$0	$0	$13	$103	$192
271	ENGRG RES PROG ADMIN	$277	$0	$0	$43	$133	$453
SUBTOTAL		$64,350	$54,917	$99,585	$25,233	$20,417	$264,501
	PHYSICAL RESEARCH						
105	MATERIALS SCIENCE DIVISION	$2,830	$4,758	$22,435	$2,295	$611	$32,930
109	PHYSICS DIV	$2,396	$2,100	$853	$2,165	$690	$8,204
120	CHEMISTRY DIV	$1,730	$7,619	$14,691	$837	$1,033	$25,910
136	INT PULSE NEUT SOURCE PROG	$273	$642	$379	$291	$212	$1,797
137	HIGH ENERGY PHYSICS DIV	$12,266	$2,923	$12,361	$853	$1,386	$29,789
139	DIV OF EDUCATIONAL PROGRAMS	$1,904	$0	$0	$499	$142	$2,545
145	MATHEMATICS & COMPUTER SCI DI	$260	$26	$5,842	$1,961	$4,336	$12,425
146	CTD DIV - SCI APPL & RES	$28	$0	$0	$180	$0	$208
273	PHYSICAL RESEARCH PROGRAM ADM	$52	$0	$0	$17	$113	$182
SUBTOTAL		$21,739	$18,070	$56,562	$9,097	$8,522	$113,990
	EXTERNAL						
751	FERMI NATIONAL LABORATORY	$855	$0	$0	$460	$405	$1,720
752	NAVY	$13,017	$0	$0	$1,186	$6,560	$20,763
753	MORGANTOWN ENERGY TECH CENTER	$17	$0	$0	$650	$0	$667
754	DEPARTMENT OF ENERGY AT ANL	$0	$0	$0	$0	$0	$0
755	ROCKWELL INTERNATIONAL	$3	$0	$0	$0	$0	$3
756	LOS ALMOS	$25	$0	$0	$0	$0	$25
760	ABBOTT LABORATORIES	$13	$3	$452	$37	$0	$505
763	GENERAL ELECTRIC COMPANY	$0	$1	$0	$0	$0	$1
765	WESTINGHOUSE HANFORD COMPANY	$0	$2	$4	$0	$0	$6
766	BECHTEL NATIONAL, INC.	$0	$94	$406	$13	$1	$514
767	NUMERICAL ALGORITHMS GROUP, I	$0	$0	$14	$0	$0	$14
771	PURDUE UNIVERSITY	$4	$0	$0	$0	$0	$4
774	BATTELLE	$0	$1	$0	$0	$0	$1
775	SMITHSONIAN	$0	$0	$0	$0	$3	$3
777	UNIVERSITY OF CHICAGO AT ANL	$49	$0	$0	$126	$-100	$76
778	ARGONNE CREDIT UNION	$8	$0	$0	$0	$0	$8
779	UNIVERSITY OF ILLINOIS AT CHI	$8	$0	$0	$0	$0	$8
780	NEW BRUNSWICK LABORATORY	$17	$0	$0	$0	$0	$17
781	STATE OF ILL. DEPT. MENTAL HE	$0	$0	$0	$0	$7	$7
782	PACKER ENGINEERING	$15	$321	$19,001	$72	$9,699	$29,109
783	WEST VALLEY NUCLEAR SERVICES	$42	$0	$0	$0	$0	$42
784		$8	$2,072	$659	$326	$853	$3,919
SUBTOTAL		$14,083	$2,494	$20,536	$2,871	$17,427	$57,411

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
			OPERATIONS				
143	SUPP SERV DIV - ELEC DEPT	$64	$10	$0	$216	$292	$582
148	HUMAN RESOURCES-MEDICAL DEPT	$1,116	$0	$0	$111	$496	$1,723
150	SUPPORT SERV DIV - SPEC MATLS	$208	$0	$0	$23	$132	$363
161	TECH INFO SERVICES DEPT	$927	$4,760	$0	$1,613	$1,116	$8,416
201	OFFICE OF THE DIRECTOR	$192	$0	$0	$112	$151	$455
202	OFC OF CHIEF OPER OFCR	$26	$0	$0	$63	$100	$188
210	SUPP SERV DIV - CENT SHOPS	$179	$0	$0	$61	$130	$370
216	SUPPORT SERVICES DIVISION	$113	$0	$0	$36	$136	$284
222	PLANT FAC & SERV-LODGING FAC	$0	$0	$0	$0	$100	$100
232	SUPPORT SERV DIV - SECURITY	$402	$0	$0	$1	$151	$554
234	SUPP SERV DIV-HEALTH PHY	$220	$0	$0	$10	$209	$439
235	SUPP SERV DIV-ENV SAFE HEALTH	$975	$0	$0	$75	$313	$1,363
236	SUPPORT SERV DIV - FIRE DEPT	$0	$0	$0	$0	$100	$100
245	COMPUTING AND TELECOM DIV	$18,058	$0	$0	$3,578	$2,152	$23,788
247	COMP & TEL DIV - COM SERV	$1,528	$0	$0	$282	$1,205	$3,014
260	SUPP SERV DIV-GRAPHIC ARTS	$205	$192	$0	$110	$154	$662
275	OFFICE OF PUBLIC AFFAIRS	$589	$0	$0	$54	$133	$776
276	OFC PUB AF - MOTN PIC UNIT	$32	$0	$0	$0	$3	$35
296	TELECOM COST/RECOVERY	$0	$0	$0	$285	$0	$285
315	SUPP SERV DIV-MATLS & SERV	$2,908	$0	$0	$695	$336	$3,940
316	PLANT FAC & SERV-VEH MAINT	$0	$0	$0	$0	$159	$159
317	PLANT FAC & SERV-DRIV&RIG SER	$19	$0	$0	$1	$113	$134
319	SUPP SERV DIV-TRAVEL OFC	$6	$0	$0	$104	$100	$209
322	SUPP SERV DIV-PROCUREMENT	$43	$0	$0	$0	$115	$158
333	QA, ENVIR & SAFETY OFC	$190	$1	$0	$37	$220	$448
340	APS DIVISION MANAGEMENT	$0	$0	$0	$1	$0	$1
400	OFC OF CHIEF FIN OFFICER	$55,102	$0	$0	$3,548	$15,701	$74,352
401	ACCOUNTING	$0	$0	$0	$11	$100	$111
402	OFC CHIEF FIN OFCR-DATA ENTRY	$13	$0	$0	$125	$0	$138
403	BUDGET OFFICE	$0	$0	$0	$0	$100	$100
410	HUMAN RESOURCES DEPARTMENT	$13,216	$0	$0	$1,167	$1,393	$15,776
412	AFFIRM ACTION PROGRAM	$81	$0	$0	$38	$100	$219
501	PLANT FAC & SERV-BLDG MAINT	$36	$0	$0	$35	$143	$214
502	PLANT FAC & SERV-INSTALLATION	$0	$0	$0	$0	$100	$100
503	PLANT FAC & SERV-GROUNDS	$0	$0	$0	$0	$100	$100
504	PLANT FAC & SERV-CUSTODIAL	$0	$0	$0	$0	$100	$100
505	PLANT FAC & SERV-WASTE MGMT O	$61	$0	$0	$43	$134	$238
506	PLANT FAC & SERV-PLANT MGR OF	$201	$0	$0	$43	$171	$416
510	PLANT FAC & SERV-UTILITY SYST	$0	$0	$0	$0	$102	$102
512	PLANT FAC & SERV-FAC PLNG/ENG	$366	$0	$0	$6	$121	$493
530	SITE MGRS OFC-ANL WEST	$22	$0	$0	$0	$101	$123
531	PERSONNEL-ANL WEST	$83	$0	$0	$74	$100	$257
532	SPECIAL MATLS-ANL WEST	$1,764	$0	$0	$300	$330	$2,394
533	ACCOUNTING-ANL WEST	$0	$0	$0	$0	$100	$100
534	PURCHASING-ANL WEST	$0	$0	$0	$0	$100	$100
535	SECURITY - ANL WEST	$21	$0	$0	$0	$100	$121
536	SAFETY STAFF-ANL WEST	$206	$0	$0	$4	$102	$312
537	INFORMATION SERVICE-ANL WEST	$0	$0	$0	$0	$100	$100
538	MATLS HANDLING-ANL WEST	$82	$0	$0	$15	$100	$197
550	COMPUTER APPL & SERV - ANL-W	$125	$0	$0	$62	$100	$287
551	RAD MONITORING-ANL WEST	$8	$0	$0	$0	$100	$108
554	MACHINE SHOP-ANL WEST	$32	$0	$0	$3	$100	$135
556	SITE ENGRG-ANL WEST	$86	$0	$0	$14	$100	$200
557	PLANT SERVICES-AW-SERVICE REQ	$75	$0	$0	$6	$100	$181
558	PLANT SERVICES-AW-FUNCTION	$4	$0	$0	$0	$0	$4
559	FOOD SERVICES - ANL WEST	$0	$0	$0	$0	$100	$100
561	OFC OF QUALITY ASSURANCE - AW	$4	$0	$0	$0	$101	$105
563	TALENT RESOURCE POOL-ANL WEST	$0	$0	$0	$0	$100	$100
730	OPERATING WORK PROJECTS	$0	$0	$0	$0	$-179	$-179
SUBTOTAL		$99,586	$4,964	$0	$12,962	$28,236	$145,748
TOTAL		$233,932	$110,454	$191,055	$58,803	$85,311	$679,556

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 708)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-3270	n.a.	972-3270
X.25 Terminal Multiplexor 300 to 19.2K Bits Per Second(Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-2525	n.a.	972-2525
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-8700	n.a.	972-8700
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-5588	n.a.	972-5588
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
Tymnet Commercial Packet-Switching Network			
Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.			

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.

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Argonne National Laboratory
Computing and Telecommunications Division
July 1990

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering two classes. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the classes and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

INTRODUCTION TO DISSPLA CODEBOOK

Goals:	To learn about CODEBOOK on the VAX 8700 VMS and IBM CMS operating systems. To learn how you can use this high level interactive plotting language to graphically visualize your scientific, engineering, or administrative datasets.
Length of Class:	One 3-hour session
Date and Time:	July 12, 1990 (Thursday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-216
Suggested Reading:	*CODEBOOK User Guide*
Instructor:	Ken Greenlee

USING NCSA IMAGETOOL FOR DESKTOP SCIENTIFIC VISUALIZATION

Goals:	To see what visualization capabilities the NCSA Imagetool program can provide. To learn how to create Fortran or C programs to convert your data into the form Imagetool accepts.
Prerequisite:	Working knowledge of C or Fortran
Length of Class:	One 3-hour session
Date and Time:	July 26, 1990 (Thursday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-216
Suggested Reading:	*NCSA Image for the Color Macintosh Version 2.0*
Instructor:	Dave Lifka

COMPUTER SIMULATION OF RIGID BODY DYNAMIC MECHANICAL SYSTEMS

Demonstration

Length of Demonstration:	Two hours
Date and Time:	July 18, 1990 (Wednesday), 1:00 p.m. to 3:00 p.m.
Location:	Building 221, Room A-216

Seminar

Length of Seminar:	One hour
Date and Time:	July 18, 1990 (Wednesday), 3:30 p.m. to 4:30 p.m.
Location:	Building 203 auditorium

Refreshments will be available at 3:15 p.m. outside the Building 203 auditorium.

COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH	Introduction and Advanced Concepts of Xedit

DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

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Argonne National Laboratory Computing and Telecommunications Division

VOLUME 21 NUMBER 8 AUGUST 1990

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AUG 2 1990
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

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Computing Center Classes

COMPUTING AND TELECOMMUNICATIONS DIVISION
Argonne National Laboratory
Building 221
Argonne, Illinois 60439-4822
FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Computer Network	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Data Communications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	B159	2-7329	B32848 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.1, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

COMPUTING COMMENTS

IBM 3084 COMPUTER IN FULL PRODUCTION

On Thursday, July 12, 1990 (several days earlier than originally planned), the new IBM 3084QX computer assumed the VM production workload from the red IBM 3033 computer. In June, the Computing and Telecommunications Division (CTD) had moved the production MVS workload to the IBM 3084. On Friday, July 13, following a 30-day acceptance test in which no failures occurred, we accepted the new machine. On Saturday, July 21, IBM moved the remaining input/output device connections from the red IBM 3033 to the IBM 3084.

Comparisons of CPU performance on the old IBM 3033 computers and the IBM 3084 computer show improvements that range from 40 to 100 percent. Comparisons were done on a variety of MVS jobs and VM sessions.

After decommissioning the IBM 3033 computers, which is expected by the end of the fiscal year, CTD will use the space occupied by these machines for office space. Plans for the renovation are under way.

COMPUTING CENTER LABOR DAY HOLIDAY SCHEDULE

The CTD computing systems will remain in operation with at least one operator in attendance throughout the Labor Day 1990 holiday to provide services comparable to the normal weekend services. A computer operator will be available to mount tapes; to check personal tapes in and out; and to process and distribute output from the IBM 3800 laser printer, the IBM 6262 and IBM 1403 impact printers, the CalComp 5835XP color plotter, and microfiche. CTD will not develop film (color or black and white) and will not copy microfiche until Tuesday, September 4, 1990.

All interactive and batch computing will be available at weekend and holiday rates from 7:00 a.m. on Saturday, September 1, 1990, until 7:00 a.m. on Tuesday, September 4, 1990. For information about unexpected changes in service, call the Current System Status Recorded Message at extension 2-5466. For assistance in accessing scheduled services, call the computer operator on duty at extension 2-5421.

MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASS

The Mathematics and Computer Science Division is offering a three-day class (9:00 a.m. to 4:30 p.m., on Wednesday, Thursday, and Friday, October 17-19, 1990) on how to write programs for the parallel computer systems in the Argonne Advanced Computing Research Facility (ACRF).

The class will cover the following topics: (1) parallelizing compilers, (2) using the VecPar interactive parallelization tool, (3) using the Argonne Monitor package, (4) using the STRAND parallel programming language, (5) programming the Butterfly TC2000, (6) programming the Distributed Array Processor (DAP), and (7) programming the Connection Machine-2. The class will include hands-on experience in writing and running programs on each machine. Participants will become familiar with the ACRF environment. Some knowledge of Unix and Fortran is necessary. To become familiar with Unix, refer to *A Practical Guide to UNIX System V* (0-8053-8915-6), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address huml@mcs.anl.gov. There is a $25.00 charge per person for universities, federal laboratories, and other government organizations and a $100 charge for commercial organizations.

COMPUTING CLASSES SCHEDULED FOR SEPTEMBER 1990

During September 1990, CTD will offer six classes. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Introduction to Computing Facilities and Services (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

Introduction to VAX/VMS (one 3-hour session) is for first-time VAX/VMS users who need an overview of the features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up subdirectories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to the Extensible VAX Editor." Everyone registering for this class should request an account on the VAX 8700 computer before attending the class to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

Introduction to UNICOS (two 3-hour sessions) is for new users who want basic information on UNICOS on the Cray X-MP/14 high-performance computer. The class covers introductory material on the Unix file system, space management, and shell programming and how to submit jobs and to manage Cray files from the IBM MVS front-end stations or from scientific workstations using Transmission Control Protocol/Internet Protocol (TCP/IP).

Programming in VAX/VMS (one 3-hour session) acquaints VMS users with features of VMS. Topics include programming VAX Fortran; writing DCL (Digital Command Language) procedures; using the VMS system debugger, the runtime library, and system services; and reviewing VMS internals.

Introduction to Wylbur for MVS Batch Computing (one 3-hour session) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the IBM MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit IBM MVS and Cray UNICOS batch jobs; and to review IBM MVS and Cray UNICOS batch output.

Using CMS with IBM 3270-Compatible Display Terminals (one 2-hour lecture and one 1-hour lab) is for CMS users on an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or an ASCII terminal with the Hydra Protocol Converter. The class is for people who send or receive electronic mail; who organize information in files and obtain information from files; who create and modify data, programs, or text files; or who use applications packages such as Cuechart, SAS, Script, and Tellagraf. Everyone registering for the CMS class must have a VM/SP account before attending the class. To request an account, contact Account Services (Building 221, Room A-147, extension 2-5425).

CRAY NEWS

BCSLIB AND BCSLIB-EXT INSTALLED ON THE CRAY X-MP/14 COMPUTER

CTD has installed Release 12 of BCSLIB (a Mathematical/Statistical Subroutine Library) and BCSLIB-EXT (an Extended Mathematical Subroutine Library) from Boeing Computer Services on the Argonne Cray X-MP/14 computer.

BCSLIB is an extensive collection of Fortran-callable functions and subroutines designed to satisfy the bulk of the Fortran users' requirements for mathematical and statistical software. It provides building blocks for all significant branches of numerical mathematics (for example, special functions, interpolation and approximation, polynomial and non-linear equations, quadrature and differential equations, linear algebra, statistics and probability, optimization, time series analysis, and data manipulation).

BCSLIB-EXT is a supplemental library of Fortran subroutines that you can use for efficient solution of "large scale" scientific problems. These problems are too large to fit into computer memory or require long execution times. BCSLIB-EXT has routines that you can use to solve dense and sparse linear algebra problems and to perform fast Fourier transforms out of memory.

BCSLIB and BCSLIB-EXT are in the Cray directory **/usr/lib** and have the names **libbcslib.a** and **libbcsext.a**.

To compile and link a program that calls BCSLIB routines, enter:

```
cf77 -l bcslib -- prog.f
```

where "prog.f" is your program.

To build an executable program (if your program has already been compiled), enter:

```
segldr -l bcslib prog.o
```

A four-volume set of three BCSLIB documents *(Computer Supplement for Release 12, Fundamental Subprograms in Release 12,* and *Advanced Subprograms in Release 12)* and one BCSLIB-EXT document *(The Boeing Extended Mathematical Subprogram Library)* is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies). For further information, contact Tom Canfield at extension 2-4588.

MANAGEMENT INFORMATION SYSTEMS

FY1991 ADPO PROJECTS PRESENTED

The Administrative Data Processing Oversight (ADPO) Committee has received requests for funding of 11 administrative computing systems beginning in FY1991. Three major projects are under consideration: the Argonne Information Management (AIM) System, the Integrated Materials Management System (IMMS), and enhancements to the Integrated Financial System (IFS). Both AIM and IFS are large, complex projects with substantial Laboratory investment already in place. IMMS is in the planning and procurement stage, with the major Laboratory investment expected over the next several years.

In the people systems area, proposed systems would enhance the Integrated Medical System (IMS); develop an Applicant Information System (AIS); continue work on the replacement of the Human Resource System (HRS); provide a computer base for an Employee Certification, Training, and Development System; and enhance the Human Resources business systems. Other project proposals would improve production by moving administrative operations tasks to MVS/TSO, acquire Customer Information Control System (CICS) testing tools, and begin research on how to create the initial stages of the anticipated infrastructure for cooperative processing.

The ADPO Committee will review all proposals and will establish priorities for their funding before submitting their recommendation to the Chief Operations Officer. More detailed descriptions of proposals and their disposition will appear in *A Plan for Administrative Computing at ANL: FY1991 through FY1993*, to be published in August 1990.

MERIT REVIEW SYSTEM OPERATIONAL

In July 1990, Human Resources installed the recently developed Merit Review System. This system is used by Human Resources and authorized users within the Laboratory to assist in processing the annual performance evaluations and merit increases.

The Merit Review System is an online Customer Information Control System (CICS)-based system running on the IBM 3084 computer. This operating environment is the same one as the Integrated Financial System (IFS) and the Argonne Materials Order System (AMOS). Planned Human Resources applications that include the Human Resource System (HRS), the Applicant Information System (AIS), and the Employee Certification/Development System (EC/DS) will also operate in the CICS environment.

The Merit Review System contains nine CICS transactions and seven standard reports for Laboratory-wide use and twelve additional reports used exclusively by Human Resources staff. The System (1) provides online inquiry and updating of performance evaluation scores and proposed increases, (2) handles electronic files of merit review data for divisions that operate private divisional systems, (3) accepts electronic files with performance scores and increases from private divisional systems, and (4) includes automatic roll up of planned increases to the next higher organizational level for monitoring and control purposes.

The Merit Review System is available only to those persons authorized to provide or to view performance and salary data.

CARD READER TO BE ELIMINATED IN BUILDING 201

On Monday, August 6, 1990, Information and Production Services will decommission remote job entry station RM050 in Building 201 and will eliminate the card reader at RM050, because no administrative applications use cards anymore. If you need a card reader, bring your cards to the counter in Building 221, Room A-134; Operations personnel will read them into the system.

INTEGRATED FINANCIAL SYSTEM UPDATE

In June 1990, a pilot group of Integrated Financial System (IFS) users began to test the new inquiry capabilities of the Information Organizer (IO) system. In July 1990, the IFS Project Team conducted classes for all of the Laboratory's financial system users to teach them how to use the new inquiry capabilities. The inquiry capabilities allow users to view the IFS chart of accounts, work project, and service request data.

Also in July 1990, the Project Team made changes that will dramatically reduce the time needed to produce the month-end financial reports for the Laboratory's financial users. In June 1990, the month-end reports required about 52 hours to execute. The Project Team has split the large IFS database, which currently contains over a million records, into several smaller databases. The Project Team will change the month-end reports so that they will access these smaller databases. We expect this to reduce the time needed to produce the month-end reports by approximately 40 percent. Users should also see a reduction in the cost of their reports.

The Project Team has been developing an ad hoc reporting database to make it easier for interested users to create their own IFS reporting programs. Later this year, a test group of IFS users will attend a Dun & Bradstreet Software Services class to learn how to use the Information Expert fourth-generation programming language. The test group will then create their own ad hoc reporting programs by using a subset of the IFS database. We will evaluate the results of this test to determine how we will provide the ad hoc reporting capability to interested users.

Progress on all phases of the IFS project will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

TELECOMMUNICATIONS NEWS

NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 3,150 computers at over 1,125 sites. Since the last *Newsletter* article in June 1990, the following universities and organizations have joined BITnet:

Academy of Science--East Berlin
Akdenis University--Antalya, Turkey
Barry University--Miami Shores
Cancer Research Center of Hawaii
Catholic University of the North--Antofagasta, Chile
Cedars-Sinai Medical Center--Los Angeles
Chuo-Gakuin University--Chiba, Japan
Czechoslovak Technical University--Prague
Dokuz Eylul (Ninth September) University--
  Izmir, Turkey
Ewha Women's University--Seoul
Federal University of Paraiba--Joao Pessoa, Brazil
Federal University of the Amazon--Manaus, Brazil
Florida Community College at Jacksonville
Higher Education Council--Ankara, Turkey
IBM Brazil Scientific Center--Rio de Janeiro
Institute for Clinical Physiology--Pisa
Kyoto Sangyo University

Loyola University--New Orleans
National Academy of Sciences--Budapest
National Biotechnology Center--Madrid
National Center for Space Studies--Toulouse
National Central University--Taiwan
Para Museum Emilio Goeldi--Belem, Brazil
Regional Technical College--Carlow, Ireland
Research Triangle Institute
SRCE--Zagreb, Yugoslavia
State University of Londrina--Brazil
Sung Kyun Kwan University--Seoul
Technical University of Wroclaw--Poland
Texas A&I University
TUBITAK--Ankara and Gebze, Turkey
University of Warsaw

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS, the VAX 8700, or MVS Wylbur):

```
HELP BITNET NODES
```

VAX/VMS NEWS

TT/RECON IMPROVES ASSISTANCE FOR REMOTE VAX 8700 USERS

Many users call the User Services consultants at extension 2-5405 for assistance in using the central computers. Sometimes, when details cannot be communicated easily over the telephone, we ask users to visit the Consulting Office (Building 221, Room A-139). This option is not available to Argonne-West and other remotely located users.

Now, however, CTD has obtained the TT/RECON software package from Software Partners/32, Inc. TT/RECON enables authorized personnel (such as User Services consultants) to view a VAX 8700 user's interactive session while providing assistance over the telephone. As a matter of policy, User Services will use TT/RECON only with the user's permission. TT/RECON displays an informational message at the user's terminal when it begins and ends monitoring that session and permits User Services consultants to enter commands into a user's active session.

The capability for remote VAX 8700 users and User Services consultants to view the same session at the same time has already demonstrated its effectiveness in communicating complex details and in providing assistance in the use of the VAX 8700 service.

BITS & BYTES

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new or recently revised documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing and Telecommunications Documents

Guide to Computing at ANL (ANL/TM 336, REVISION 2) provides a general overview of the central computing facilities for those interested in using those computers at Argonne National Laboratory. This information will assist you in selecting the computer, system, network, and software with which you can do your work most efficiently. This edition supersedes the March 1988 printing.

The *Automated Materials/Payables System Information Guide* (ANL/TM 481) contains general information about the Automated Materials Payable System (AMPS). Management Information Systems (MIS) recommends it for all users of AMPS.

Manual Purchase Order Closing (ANL/TM 480, REVISION 1) describes how to close a purchase order manually. Readers should have a working knowledge of AMPS. This document supersedes the April 1987 printing.

Other Vendor Document

Mass-11 Word Processing is a boxed set containing three separate documents: *Mass-11 Word*

Processing: Getting Started, Mass-11 Word Processing: Pocket Reference Guide, and *Mass-11 Word Processing: VAX/VMS Reference Manual.* These documents describe Version 8.0 of Mass-11. This document supersedes the previous edition of *Mass-11 Word Processing.*

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD JULY 10, 1990

Dotti Bingaman (Environmental Assessment and Information Sciences) opened the meeting at 3:05 p.m.

IBM 3084 Status Report. Jerry Davison (Computing and Telecommunications) reported that the A side of the IBM 3084 computer is currently running in place of the yellow IBM 3033 computer. Testing carried out on running VM has shown that the VM/SP product will run on the IBM 3084 and that the VM/HPO version is not necessary. (See "IBM 3084 Computer in Full Production" in this *Newsletter.)*

Cray Gateway Replacement Plans. Barry Miller (Computing and Telecommunications) reported on the tools available on the VAX and the Cray to take the place of the gateway computer. (See "Plans To Replace the Cray Supercomputer Gateway Station," "CTD Provides Replacement for VAX Station Cray Context Commands," and "CTD Provides New Commands for Cray File Transfer" in the July 1990 *Newsletter.)*

Plans to Acquire Multinet NFS. Bob McMahon (Computing and Telecommunications) reported that the Multinet NFS client software will be available through a sitewide license. (See "Plans To Acquire Multinet NFS for Laboratory VAXes" in the July 1990 *Newsletter.)* CTD is beginning to investigate how Argonne-West can be added to the Argonne-East Multinet sitewide license. This summer, we expect a new version of Multinet. We will study it to determine its usefulness and new features.

Computing Policy Committee (CPC) Meeting Report. Cy Adams (Engineering Physics) reported on the June 14, 1990, CPC meeting. Larry Amiot (Computing and Telecommunications) announced that Argonne has been awarded one of the three expansion nodes on NFSnet; the other two are MIT and the Georgia Institute of Technology.

Larry Price (High Energy Physics) reported on the CPC Networking Subcommittee review on costs and recovery for networking activities within CTD. There are two categories: networking activities directly associated with the central computers and Laboratory-wide networking that (in many cases) is unrelated to the central computers. The charges in CTD's rate schedule cover the costs of central computing networking but not the costs of Laboratory-wide networking. In FY1990, the underrecovery will be approximately $800,000. Three mechanisms to recover the costs of Laboratory networking are (1) hardware connection charges, (2) metering traffic, and (3) Laboratory indirect charges. The Subcommittee feels that option (1) is not equitable and is difficult to administer and that option (2) is impossible at this time. The CPC Budget Committee is looking at CTD's FY1991 budget and will try to find a process for identifying and recovering the costs of Laboratory-wide networking.

The meeting adjourned at 3:30 p.m.

Ken Miles, CUG Secretary

MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD MAY 10, 1990

Chairperson Mary Warren (Energy, Environmental and Biological Research) opened the meeting at 12:10 p.m.

Rich Nixon (Graphic Arts) gave an update on Graphic Arts (GA) activities. Robin Churchill (Graphic Arts) has left the Customer Service Group to become a bindery equipment operator. Currently, a special term appointee is filling her position until a permanent replacement can be found. GA is waiting for its new press to be delivered. Recently, when the workload got heavy, GA tried adding a second shift in the pressroom for two months. If GA gets extra work, it may try this procedure in the design and photography laboratories rather than buying more equipment or hiring more staff. In the past, GA has used satellite sites (another method suggested to smooth out workloads). Although popular with users, the satellite sites lost money.

Turnaround time for small jobs in GA (such as having a few PMTs made) was discussed. Typically, GA tries to get a job back to the client within 48 hours of its submission, but this goal is always subject to the workload. Also, clients should submit their jobs by 3:30 p.m. or 4:00 p.m. GA may not start working on a job brought in by the afternoon courier until the next day, especially when GA is very busy. If a job is needed by a specific time of day, the client should specify that time on the service request and call to make sure the deadline can be met. The client should also call if the deadline is approaching and GA has not delivered the job yet.

The meeting concluded with a short discussion on the use and disposal of recycled paper. Rich Nixon mentioned some of the difficulties involved with using recycled paper for printing jobs: (1) It is more expensive than regular copier paper. (2) Copier manufacturers may not honor their warranties or may add to the cost of maintenance if recycled paper is used. (3) The color consistency of the paper cannot be guaranteed if documents are printed on recycled paper. However, if a limited catalog of recycled paper were used instead of the more expensive specialty stocks that are sometimes used for documents, covers, and envelopes, it might save the Laboratory money. If the price of copier paper continues to rise, using recycled paper might also become a more cost-effective option. (The Laboratory used more than 33 million sheets of paper last year.)

If you have questions on recycling waste paper, contact Bernard Doerr (extension 2-8606). In a telephone conversation, he advised that the recycling company accepts almost any type of paper (except newspapers and coated or colored stock). He encourages everyone to put all papers (except the type noted above) into the bins for recycled paper--even papers they are not sure about (such as pages that are stapled or clipped or have labels glued on them). If people dispose of too much unacceptable material in the bins, he will inform the janitors in that building. It has been necessary to separate some items at the dock. Put reports bound with metal strips and books into separate boxes for recycling. Computer cards and white paper (like the paper used in copying machines and computers) are especially desirable. The Laboratory has been recycling about 12,000 pounds each week.

The next meeting will be held on Thursday, August 9, 1990, at noon in Room 276, Building 201.

Marita Moniger, Graphic Arts Users Group Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD JULY 11, 1990

Bob Kampwirth (Materials Science) opened the meeting at 11:08 a.m. The meeting announcement was again sent out through electronic mail, when possible, and through paper announcements for those who do not have Email capabilities. If you did not get an Email notice, contact Lee Wagar (Graphic Arts) to be sure that she has your correct computer mail address.

Lois Rouber (a Chicagoland representative for Apple Computer) demonstrated the Apple A/UX operating system (Version 2.0) by using an Apple Macintosh II/fx with 8 megabytes of random-access memory (RAM) and an 80 megabyte hard disk. Before joining Apple Computer several years ago, Lois had worked for several years in a Unix shop. Thus, she is familiar with Unix and the Apple Macintosh. With A/UX 2.0, one can run Apple Macintosh applications, Unix applications, and X Window applications simultaneously with the familiar intuitive Apple Macintosh interface. For Unix or X Window, the interface appeared to be easy to use. All of AT&T's Unix System V, Release 2, Version 2, features (with BSD 4.3 extensions) are fully implemented and easier to use with the Apple Macintosh interface of A/UX 2.0.

You can see the ease of use of Unix (as implemented in A/UX 2.0) in the command line, text file, and printing features. You can generate command lines now by a dialog box for the command that has a series of radio buttons. As you select the button options, the command line is generated in a window in the dialog box. You can create these dialog boxes if they do not exist for your particular command. You can edit text files with Unix information in the regular Apple Macintosh fashion rather than by using a Unix editor (such as the VI editor). The Unix printers can now be selected by using the Apple Chooser in typical Apple Macintosh fashion and can use the printer port with Apple Macintosh printers.

A/UX 2.0 divides the hard disk into Apple Macintosh and one or more Unix partitions. The Unix partitions have all the Unix features (including a system manager, password protection, various levels of user privileges, user profiles, multitasking, and log out). You can use any application in the Unix environment as long as it is "32-bit clean." This procedure is generally not difficult, but Microsoft Excel 2.2 does not work.

To run A/UX 2.0, one must have an Apple Macintosh II with a Paged Memory Management Unit (PMMU) chip or an 86030-based Apple Macintosh (such as the SE/30, IIx, IIcx, IIci, or IIfx). A minimum of 4 megabytes of RAM is necessary; Lois recommended 8 megabytes. An 80 megabyte hard disk is necessary; Lois recommended a 160 megabyte hard disk. While A/UX 2.0 is available on floppy disks and on tape, Lois recommended the compact disk version with the Apple CD SC drive for loading A/UX onto the hard disk. The University of Chicago Campus Computer Store (312-702-6086) price on the A/UX 2.0 floppy diskettes (including the A/UX accessory kit) is $735.

Some other A/UX notes follow. A/UX is a true multitasking system, which means multiple windows (applications) can run simultaneously. In the present version of A/UX, you can open only one Apple Macintosh session at a time. This session is essentially in Multifinder, and all "Mac" applications must run under this session. To take advantage of the multitasking of Unix (and thus run under a different session), one must compile the application with special (provided with A/UX) Fortran or C compilers. In the Unix environment, such commands as "log out" are now items on the Apple Macintosh menu bar. The A/UX manual comes in a 14 binder set.

After the meeting, Paul Steimle (Environmental Assessment and Information Sciences) asked the secretary to include the announcement that Version 2.0 of Disinfectant is available from the Public AlisaShare volume on the VAX 8700 computer. One can also get it directly from Paul.

There will be no Apple Macintosh Users Group meeting in August 1990. We are considering the new graphics program, DeltaGraph, as a topic for the September 1990 meeting.

The Apple Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information. The meeting adjourned at 12:20 p.m.

Ralph Leonard, Macintosh Users Group Secretary

WORKLOAD STATISTICS (MAY 31 THROUGH JUNE 28, 1990)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	*END OF MONTH*	*ACTIVE DURING MONTH*
CMS	1,235	1,254	469
Wylbur	1,685	1,702	396
MVS TSO	57	57	15
CICS	1,685	1,702	121
MVS Batch	2,189	2,254	647
VAX/VMS	551	683	345
Cray	345	367	142
All Systems	2,189	2,254	993

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				*SESSION*	*CPU*
	PRIME	*NIGHT*	*WEEKEND*	*TOTAL*	*TIME (HRS)*	*TIME (HRS)*
INTERACTIVE						
CMS	11,211	2,814	1,485	15,510	35,546.6	99.92
Wylbur	8,114	317	278	8,709	8,579.6	8.64
MVS TSO	445	3	2	450	308.2	1.13
CICS	52	39	24	115	0.0	4.30
VAX/VMS	13,860	2,794	1,208	17,862	23,351.2	141.62
Cray	1,693	120	58	1,871	1,306.8	14.27
IBM BATCH						
Class U	10,057	1,951	949	12,957	n.a.	46.27
Class W	17,502	2,296	1,037	20,835	n.a.	163.96
Class X	0	572	84	5,806	n.a.	80.47
Class Y	0	0	183	183	n.a.	43.57
Nonmain	14,411	1,887	917	17,215	n.a.	0.00
Total	41,970	6,706	3,170	56,996	n.a.	334.27
CRAY BATCH						
u	1,693	120	58	1,871	n.a.	36.79
w	2,684	300	251	3,235	n.a.	221.90
x	173	210	29	412	n.a.	32.92
y	2,236	1,071	976	4,283	n.a.	257.99
Total	6,786	1,701	1,314	9,801	n.a.	549.60
VMS BATCH						
W_BATCH	1,354	753	130	2,237	n.a.	129.05
X_BATCH	18	48	9	75	n.a.	82.05
Y_BATCH	4	1	35	40	n.a.	11.08
Total	1,376	802	174	2,352	n.a.	222.18

INPUT/OUTPUT

Lines Printed	
Local	59,126,283
Remote	49,100,152
Fiche	36,304,237
Cards Punched-Local Only	37,633
Tape Mounts	6,409
Microfiche Developed	4,205
Microfiche Frames Developed	804,792

GRAPHICS

	# OF JOBS	*# OF FRAMES*
CalComp Jobs	45	n.a.
Matrix 35mm Color	214	476
Matrix-8 x 10	6	6
Matrix-Negative	3	6
FR80 Film Plots		
35mm Black/White/Unsprocketed	21	189
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	0	0
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	24,879
New Tapes Saved	245
Tapes Released	493
Datasets Exported to Tape	2,286
Datasets Imported from Tape	288

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (MAY 31 THROUGH JUNE 28, 1990)

	Monthly Totals	Scheduled			Unscheduled		
		Hardware	Software	Other	Hardware	Software	Other
CMS							
All Shifts							
Interruptions	9.00	3.00	4.00			2.00	
Hrs Unavailable	27.88	19.36	6.25			2.26	
MTF/Unscheduled	334.05					334.05	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00					2.00	
Hrs Unavailable	2.26					2.26	
MTF/Unscheduled	124.86					124.86	
WYLBUR							
All Shifts							
Interruptions	14.00	3.00	9.00		2.00		
Hrs Unavailable	39.33	19.86	17.66		1.80		
MTF/Unscheduled	328.33				328.33		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00				2.00		
Hrs Unavailable	1.80				1.80		
MTF/Unscheduled	125.10				125.10		
MVS TSO							
All Shifts							
Interruptions	13.00	3.00	9.00		1.00		
Hrs Unavailable	38.43	19.86	17.66		0.90		
MTF/Unscheduled	657.56				657.56		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00				1.00		
Hrs Unavailable	0.90				0.90		
MTF/Unscheduled	251.10				251.10		
JES3							
All Shifts							
Interruptions	13.00	3.00	9.00		1.00		
Hrs Unavailable	38.13	19.75	17.56		0.81		
MTF/Unscheduled	-657.86				657.86		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00				1.00		
Hrs Unavailable	0.81				0.81		
MTF/Unscheduled	251.18				251.18		
CICS							
All Shifts							
Interruptions	1.00				1.00		
Hrs Unavailable	0.93				0.93		
MTF/Unscheduled	695.06				695.06		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00				1.00		
Hrs Unavailable	0.93				0.93		
MTF/Unscheduled	251.06				251.06		
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	9.00		4.00	1.00	1.00	2.00	1.00
Hrs Unavailable	16.06		4.81	9.25	0.51	1.06	0.41
MTF/Unscheduled	169.98				679.93	339.96	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00					2.00	
Hrs Unavailable	1.06					1.06	
MTF/Unscheduled	125.46					125.46	
CRAY							
All Shifts							
Interruptions	7.00	5.00			2.00		
Hrs Unavailable	20.55	19.86			0.68		
MTF/Unscheduled	337.72				337.72		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00				1.00		
Hrs Unavailable	0.35				0.35		
MTF/Unscheduled	251.65				251.65		

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (MAY 31 THROUGH JUNE 28, 1990)

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
	ADVANCED PHOTON SOURCE						
130	ADVANCED PHOTON SOURCE DIV	$268	$586	$0	$651	$101	$1,606
272	ADVANCED PHOTON SOURCE	$52	$0	$0	$42	$10	$104
341	APS ACCELERATOR PHYSICS	$337	$1,807	$519	$150	$115	$2,927
342	APS DIAGNOSTICS	$0	$0	$0	$0	$24	$24
343	APS LINAC	$0	$345	$0	$19	$17	$381
344	APS RF	$6	$0	$0	$3	$0	$9
345	APS VACUUM	$4	$1,720	$0	$24	$98	$1,846
347	APS CONTROLS	$61	$3	$0	$1	$85	$149
348	APS MAGNETS	$83	$1,035	$0	$95	$1	$1,214
349	APS POWER SUPPLIES	$48	$0	$0	$12	$0	$60
350	APS DIVISION MANAGEMENT	$0	$0	$0	$0	$0	$0
351	APS INSERTION DEVICES	$472	$332	$0	$18	$380	$1,202
353	APS BEAM LINE INSTRUMENTATION	$20	$0	$0	$0	$0	$20
360	APS CONVENTIONAL FACILITIES	$11	$1	$0	$0	$0	$11
361	APS PROJECT DIRECTION	$1,018	$5	$0	$161	$86	$1,270
362	APS MANAGEMENT GENERAL	$22	$0	$0	$0	$0	$22
SUBTOTAL		$2,403	$5,835	$519	$1,173	$917	$10,847
	ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	BIO & MED RES DIV	$2,124	$1,792	$238	$1,218	$1,850	$7,222
125	TECHNOLOGY TRANSFER CENTER	$85	$0	$0	$2	$117	$204
149	ENVIROMMENTAL RESEARCH DIV	$1,311	$400	$1,403	$704	$572	$4,390
155	ENERGY SYSTEMS DIVISION	$19,654	$1,579	$17,789	$1,678	$-353	$40,348
165	ENV ASSESS & INFO SCI DIV	$7,096	$17,477	$1,986	$2,808	$3,312	$32,679
174	ENER/ENV/BIO PROG DIR	$14	$0	$0	$1	$110	$125
246	ES-NAT'L ENERGY SOFTWARE CTR	$90	$0	$0	$893	$595	$1,579
274	ENER/ENV/BIO RES PROG ADM	$63	$0	$0	$0	$100	$163
SUBTOTAL		$30,436	$21,248	$21,417	$7,304	$6,302	$86,709
	ENGINEERING RESEARCH						
102	EBR-II PROJECT-ANL WEST	$4,059	$43	$682	$313	$191	$5,288
107	CHEMICAL TECHNOLOGY DIVISION	$684	$120	$0	$1,042	$1,036	$2,884
112	REACTOR ANAL & SAFETY	$15,778	$403	$12,349	$6,434	$3,440	$38,403
114	MATLS & COMP TECH DIV	$4,395	$3,973	$211	$3,422	$1,783	$13,784
115	ENGINEERING PHYSICS DIVISION	$43,730	$21,307	$93,994	$12,188	$11,303	$182,522
117	APPLIED PHYSICS-ANL WEST	$2,225	$2	$9,084	$413	$919	$12,643
118	REACTOR EXP & EXAM DIV	$5,721	$568	$4	$450	$317	$7,060
119	ANALYTICAL LABORATORY ANL-WES	$0	$0	$0	$0	$100	$100
171	ENGRG RES PROG DIR	$4	$0	$0	$0	$104	$108
197	SPECIAL PROJECTS OFFICE	$446	$2	$0	$16	$163	$628
211	ENGINEERING PHYSICS DIVISION	$117	$15	$0	$7	$2,893	$3,032
269	CHEM TECH DIV-ANALYTICAL CHEM	$56	$0	$0	$6	$147	$208
271	ENGRG RES PROG ADMIN	$230	$0	$0	$15	$166	$411
SUBTOTAL		$77,444	$26,434	$116,323	$24,307	$22,563	$267,070
	PHYSICAL RESEARCH						
105	MATERIALS SCIENCE DIVISION	$4,607	$4,438	$8,966	$2,363	$852	$21,226
109	PHYSICS DIV	$1,662	$1,187	$272	$1,746	$475	$5,343
120	CHEMISTRY DIV	$2,690	$6,598	$9,238	$637	$515	$19,677
136	INT PULSE NEUT SOURCE PROG	$126	$493	$363	$234	$198	$1,414
137	HIGH ENERGY PHYSICS DIV	$5,707	$1,961	$6,103	$737	$1,359	$15,867
139	DIV OF EDUCATIONAL PROGRAMS	$438	$0	$0	$111	$157	$706
145	MATHEMATICS & COMPUTER SCI DI	$263	$31	$5,305	$2,074	$4,306	$11,980
146	CTD DIV - SCI APPL & RES	$27	$2	$0	$134	$48	$211
273	PHYSICAL RESEARCH PROGRAM ADM	$63	$0	$0	$16	$101	$180
SUBTOTAL		$15,584	$14,709	$30,247	$8,052	$8,011	$76,603
	EXTERNAL						
751	FERMI NATIONAL LABORATORY	$800	$0	$0	$460	$378	$1,639
752	NAVY	$10,992	$0	$0	$1,228	$6,039	$18,259
753	MORGANTOWN ENERGY TECH CENTER	$16	$0	$0	$650	$0	$666
754	DEPARTMENT OF ENERGY AT ANL	$0	$0	$0	$1	$0	$1
755	ROCKWELL INTERNATIONAL	$1	$0	$0	$0	$0	$1
756	LOS ALMOS	$24	$0	$0	$0	$0	$24
760	ABBOTT LABORATORIES	$12	$2	$224	$1	$0	$240
763	GENERAL ELECTRIC COMPANY	$0	$1	$0	$0	$0	$1
765	WESTINGHOUSE HANFORD COMPANY	$0	$2	$4	$0	$0	$5
766	BECHTEL NATIONAL, INC.	$0	$74	$134	$7	$1	$216
767	NUMERICAL ALGORITHMS GROUP, I	$0	$0	$13	$0	$0	$13
771	PURDUE UNIVERSITY	$4	$0	$0	$0	$0	$4
774	BATTELLE	$0	$0	$0	$0	$0	$0
775	SMITHSONIAN	$0	$0	$0	$0	$3	$3
777	UNIVERSITY OF CHICAGO AT ANL	$29	$0	$0	$125	$0	$154
778	ARGONNE CREDIT UNION	$8	$0	$0	$0	$0	$8
779	UNIVERSITY OF ILLINOIS AT CHI	$8	$0	$0	$0	$0	$8
780	NEW BRUNSWICK LABORATORY	$16	$0	$0	$0	$0	$16
781	STATE OF ILL. DEPT. MENTAL HE	$0	$0	$0	$0	$6	$6
782	PACKER ENGINEERING	$4	$51	$52	$1	$-16,266	$-16,158
783	WEST VALLEY NUCLEAR SERVICES	$50	$0	$0	$1	$0	$51
784		$8	$3,451	$161	$344	$992	$4,955
SUBTOTAL		$11,970	$3,580	$588	$2,819	$-8,846	$10,111

OPERATIONS

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
143	SUPP SERV DIV - ELEC DEPT	$67	$14	$0	$221	$209	$511
148	HUMAN RESOURCES-MEDICAL DEPT	$997	$0	$0	$79	$380	$1,456
150	SUPPORT SERV DIV - SPEC MATLS	$215	$0	$0	$22	$119	$357
161	TECH INFO SERVICES DEPT	$1,214	$6,051	$0	$1,971	$1,128	$10,365
201	OFFICE OF THE DIRECTOR	$210	$0	$0	$126	$153	$490
202	OFC OF CHIEF OPER OFCR	$27	$0	$0	$66	$101	$195
210	SUPP SERV DIV - CENT SHOPS	$222	$0	$0	$60	$128	$410
216	SUPPORT SERVICES DIVISION	$91	$0	$0	$32	$131	$254
222	PLANT FAC & SERV-LODGING FAC	$0	$0	$0	$0	$100	$100
232	SUPPORT SERV DIV - SECURITY	$332	$0	$0	$0	$123	$455
234	SUPP SERV DIV-HEALTH PHY	$239	$0	$0	$14	$192	$445
235	SUPP SERV DIV-ENV SAFE HEALTH	$878	$0	$0	$69	$305	$1,252
236	SUPPORT SERV DIV - FIRE DEPT	$0	$0	$0	$0	$100	$100
245	COMPUTING AND TELECOM DIV	$16,019	$0	$0	$3,740	$2,251	$22,010
247	COMP & TEL DIV - COM SERV	$1,438	$0	$0	$262	$1,314	$3,014
260	SUPP SERV DIV-GRAPHIC ARTS	$208	$172	$0	$24	$189	$593
275	OFFICE OF PUBLIC AFFAIRS	$533	$0	$0	$149	$128	$810
276	OFC PUB AF - MOTN PIC UNIT	$29	$0	$0	$0	$3	$32
296	TELECOM COST/RECOVERY	$0	$0	$0	$285	$0	$285
315	SUPP SERV DIV-MATLS & SERV	$2,485	$0	$0	$725	$589	$3,800
316	PLANT FAC & SERV-VEH MAINT	$0	$0	$0	$0	$155	$155
317	PLANT FAC & SERV-DRIV&RIG SER	$17	$0	$0	$1	$100	$118
319	SUPP SERV DIV-TRAVEL OFC	$5	$0	$0	$115	$100	$220
322	SUPP SERV DIV-PROCUREMENT	$39	$0	$0	$0	$100	$139
333	QA, ENVIR & SAFETY OFC	$93	$2	$0	$20	$180	$295
400	OFC OF CHIEF FIN OFFICER	$53,080	$0	$0	$1,957	$12,833	$67,869
401	ACCOUNTING	$0	$0	$0	$0	$100	$100
402	OFC CHIEF FIN OFCR-DATA ENTRY	$12	$0	$0	$125	$0	$137
403	BUDGET OFFICE	$0	$0	$0	$0	$100	$100
410	HUMAN RESOURCES DEPARTMENT	$12,818	$0	$0	$1,230	$1,572	$15,620
412	AFFIRM ACTION PROGRAM	$75	$0	$0	$37	$100	$212
501	PLANT FAC & SERV-BLDG MAINT	$35	$0	$0	$35	$148	$218
502	PLANT FAC & SERV-INSTALLATION	$3	$0	$0	$0	$100	$103
503	PLANT FAC & SERV-GROUNDS	$0	$0	$0	$0	$100	$100
504	PLANT FAC & SERV-CUSTODIAL	$0	$0	$0	$0	$100	$100
505	PLANT FAC & SERV-WASTE MGMT O	$56	$0	$0	$43	$100	$199
506	PLANT FAC & SERV-PLANT MGR OF	$325	$0	$0	$27	$160	$511
510	PLANT FAC & SERV-UTILITY SYST	$0	$0	$0	$0	$100	$100
512	PLANT FAC & SERV-FAC PLNG/ENG	$335	$0	$0	$7	$119	$462
530	SITE MGRS OFC-ANL WEST	$20	$0	$0	$23	$101	$144
531	PERSONNEL-ANL WEST	$153	$0	$0	$24	$100	$277
532	SPECIAL MATLS-ANL WEST	$822	$0	$0	$141	$199	$1,162
533	ACCOUNTING-ANL WEST	$0	$0	$0	$0	$100	$100
534	PURCHASING-ANL WEST	$0	$0	$0	$0	$100	$100
535	SECURITY - ANL WEST	$20	$0	$0	$0	$100	$120
536	SAFETY STAFF-ANL WEST	$184	$0	$0	$3	$102	$289
537	INFORMATION SERVICE-ANL WEST	$0	$0	$0	$0	$100	$100
538	MATLS HANDLING-ANL WEST	$85	$0	$0	$22	$100	$208
550	COMPUTER APPL & SERV - ANL-W	$137	$0	$0	$67	$131	$336
551	RAD MONITORING-ANL WEST	$7	$0	$0	$0	$100	$107
554	MACHINE SHOP-ANL WEST	$21	$0	$0	$1	$100	$122
556	SITE ENGRG-ANL WEST	$74	$0	$0	$19	$100	$193
557	PLANT SERVICES-AW-SERVICE REQ	$79	$2,026	$0	$99	$100	$2,304
558	PLANT SERVICES-AW-FUNCTION	$4	$0	$0	$0	$0	$4
559	FOOD SERVICES - ANL WEST	$0	$0	$0	$0	$100	$100
561	OFC OF QUALITY ASSURANCE - AW	$4	$0	$0	$0	$101	$105
563	TALENT RESOURCE POOL-ANL WEST	$0	$0	$0	$0	$100	$100
SUBTOTAL		$93,708	$8,267	$0	$11,842	$25,745	$139,562
TOTAL		$231,545	$80,074	$169,094	$55,498	$54,691	$590,902

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 708)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-3270	n.a.	972-3270
X.25 Terminal Multiplexor 300 to 19.2K Bits Per Second(Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-2525	n.a.	972-2525
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-8700	n.a.	972-8700
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-5588	n.a.	972-5588
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920

Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.

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Argonne National Laboratory
Computing and Telecommunications Division
September 1990

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering six classes. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals: To develop an overview of available computing facilities and services provided by CTD.

Length of Class: One 3-hour session

Date and Time: September 12, 1990 (Wednesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Suggested Reading: *Guide to Computing at ANL* (ANL/TM 336)
Recommended Documentation for Computer Users at ANL (ANL/TM 379)

Instructor: Fred Moszur

INTRODUCTION TO VAX/VMS

Goals: To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Date and Time: September 13, 1990 (Thursday), 9:00 a.m. to 12:00 noon

Location: Building 221, Room A-261

Instructor: Dave Lifka

To register for a class, call extension 2-5405.

INTRODUCTION TO UNICOS

Goals: To learn the basics of the Cray UNICOS file system, space management, and shell programming, as well as basic Unix commands. To learn how to use the Network Queuing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the IBM MVS front-end station and the Laboratory-Wide Local Area Network.

Length of Class: Two 3-hour sessions

Dates and Time: September 13, 1990 (Thursday), 1:30 p.m. to 4:30 p.m.
September 20, 1990 (Thursday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Suggested Reading: *A Practical Guide to UNIX System V* (0-8053-8915-6)
UNICOS Primer (SG-2010)

Instructor: Tom Canfield

PROGRAMMING IN VAX/VMS

Goals: To learn to use the VAX/VMS system. This class will include VAX Fortran programs, suggestions for writing basic Digital Command Language (DCL) command procedures (including a LOGIN.COM), the usage of the VMS system debugger and the interprocess communications features, and an overview of the aspects of VMS internals affecting program performance.

Length of Class: One 3-hour session

Date and Time: September 20, 1990 (Thursday), 9:00 a.m. to 12:00 noon

Location: Building 221, Room A-261

Instructor: Dave Lifka

To register for a class, call extension 2-5405.

INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

Goals:	To learn to use Wylbur, an interactive system that provides a convenient interface for IBM MVS batch processing. To learn about the IBM MVS batch system at Argonne (including how to compile and execute programs and to obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for IBM batch execution.
Length of Class:	One 3-hour session
Date and Time:	September 25, 1990 (Tuesday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Suggested Reading:	*SLAC Wylbur Tutorial* *OBS Wylbur Reference Manual*
Instructor:	Mike Thommes

USING CMS WITH IBM 3270-COMPATIBLE DISPLAY TERMINALS

Goals:	To learn to use CMS with an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or a line-oriented terminal capable of using the Hydra Protocol Converter to send and receive electronic mail; to write documents and memos; to organize information in files; to create program, text, and data files; to manipulate files with the editor; to invoke programs like statistical and graphics packages; and to get printed reports.
Length of Class:	One 2-hour lecture One 1-hour lab
Date and Time:	September 27, 1990 (Thursday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-216
Suggested Reading:	*IBM VM System Product: CMS Primer* (SC24-5236) *CMS at ANL* (ANL/TM 423)
Instructor:	Pete Bertoncini

COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH	Introduction and Advanced Concepts of Xedit

DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

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Computing Center Classes

COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory
Building 221
Argonne, Illinois 60439-4822
FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	**Phone**	**Electronic Mail Address**
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Computer Network	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Data Communications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	B159	2-7329	B32848 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.1, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

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COMPUTING COMMENTS

STATUS OF FLOORS ON COMPUTING

Since the implementation of floors, usage on the Cray is up to 100 percent utilization, which is up from 85 percent last year. Usage on the VAX is up o 75 percent utilization, which is up from 35 percent last year. We expect the Cray and the VAX to continue to be very busy for the remainder of the fiscal year. To accommodate the increase in usage, the Computing and Telecommunications Division (CTD) is monitoring the usage, adjusting the tuning parameters (when applicable), working with users as needed to optimize computer programs, and acquirng hardware as funds become available.

We expect September 1990 to be exceptionally busy. Since the conversion to the IBM 3084 computer, there is some excess capacity available in the MVS and VM systems. Some users who formerly used the IBM 3033 computers for processing production codes are now experiencing delayed turnaround on the Cray X-MP. These users should consider processing their codes on the IBM 3084 computer, especially if these codes do not take advantage of the Cray floating-point vector hardware.

MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASS

The Mathematics and Computer Science Division is offering a three-day class (9:00 a.m. to 4:30 p.m., on Wednesday, Thursday, and Friday, October 17-19, 1990) on how to write programs for he parallel computer systems in the Argonne Advanced Computing Research Facility (ACRF).

The class will cover the following topics: (1) parallelizing compilers, (2) using the VecPar nteractive parallelization tool, (3) using the Argonne Monitor package, (4) using the STRAND parallel programming language, (5) programming he Butterfly TC2000, (6) programming the Distributed Array Processor (DAP), and (7) programming he Connection Machine-2. The class will include hands-on experience in writing and running programs on each machine. Participants will become familiar with the ACRF environment. Some knowledge of Unix and Fortran is necessary. To become familiar with Unix, refer to *A Practical Guide to UNIX System V* (0-8053-8915-6), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address huml@mcs.anl.gov. There is a $25.00 charge per person for universities, federal laboratories, and other government organizations and a $100 charge for commercial organizations.

COMPUTING CLASSES SCHEDULED FOR SEPTEMBER AND OCTOBER 1990

During September and October 1990, CTD will offer six classes. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Introduction to Computing Facilities and Services (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

Introduction to VAX/VMS (one 3-hour session) is for first-time VAX/VMS users who need an overview of the features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up subdirectories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to the Extensible VAX Editor." Everyone registering for this class should request an account on the VAX 8700 computer before attending the class to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

Introduction to UNICOS (two 3-hour sessions) is for new users who want basic information on UNICOS on the Cray X-MP/14 high-performance computer. The class covers introductory material on the Unix file system, space management, and shell programming and how to submit jobs and to manage Cray files from the IBM MVS front-end stations or from scientific workstations using Transmission Control Protocol/Internet Protocol (TCP/IP).

Programming in VAX/VMS (one 3-hour session) acquaints VMS users with features of VMS. Topics include programming VAX Fortran; writing DCL (Digital Command Language) procedures; using the VMS system debugger, the runtime library, and system services; and reviewing VMS internals.

Introduction to Wylbur for MVS Batch Computing (one 3-hour session) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the IBM MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit IBM MVS and Cray UNICOS batch jobs; and to review IBM MVS and Cray UNICOS batch output.

Using CMS with IBM 3270-Compatible Display Terminals (one 2-hour lecture and one 1-hour lab) is for CMS users on an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or an ASCII terminal with the Hydra Protocol Converter. The class is for people who send or receive electronic mail; who organize information in files and obtain information from files; who create and modify data, programs, or text files; or who use applications packages such as Cuechart, SAS, Script, and Tellagraf. Everyone registering for the CMS class must have a VM/SP account before attending the class. To request an account, contact Account Services (Building 221, Room A-147, extension 2-5425).

CMS NEWS

PLANS TO UPGRADE CMS TO LEVEL 522

On Monday, September 17, 1990, CTD will upgrade CMS to maintenance level 522. This level will update CMS to match the current level of the Control Program (CP).

Testing has shown that IBM has slightly changed the way that "SET CMSTYPE HT" works when Xedit is invoked from within an exec. A few messages may be displayed when Xedit is invoked, even though "SET CMSTYPE HT" is in effect. These messages should not affect the processing of the exec. However, to suppress these messages, you must now add the NOSCREEN option:

```
XEDIT TEST FILE A (NOPROF NOSCREEN
```

To use the test version of CMS level 522 before September 17, 1990, enter:

```
TESTCMS
```

Please report any difficulties to the User Services consultants at extension 2-5405.

CRAY NEWS

CRAY STATION TO BE SHUT DOWN ON OCTOBER 1, 1990

At the end of September 1990, CTD will remove Cray's VAX/VMS Station front-end software from ANLVG, the VAX 8250 computer in the central VAX cluster. Users will not be able to access xmp, the ANL Cray X-MP/14 supercomputer, from ANLVG. Users will continue to have direct access to xmp from any VAX (including ANLCV1, the VAX 8700 computer in the central VAX cluster) on the Laboratory-wide Ethernet network via the Multinet Transmission Control Protocol/Internet Protocol (TCP/IP).

After surveying users, CTD developed replacement tools for the VAX/VMS gateway to the Cray supercomputer (see "CTD Provides New Commands for Cray File Transfer" in the July 1990 *Newsletter).*

These tools eliminate the need for the supercomputer gateway license for the next fiscal year and enable the reallocation of a Cray channel for use with a Fiber Distributed Data Interface (FDDI) link. Also, Cray Research Inc. will soon stop enhancing the VAX gateway in favor of the TCP/IP-based alternatives.

Users who use **dispose -mVG** or **fetch -mVG** commands to move Cray files back and forth to the Argonne central VAX cluster can store these files in the Cray /n2/ file system for the same cost as on the VAX. If you still prefer to store Cray files on the VAX cluster, CTD encourages you to begin incorporating the new **tfetch** and **tdispose** commands into your production Cray jobs.

Users should not store sensitive data on the Cray Network File System (NFS). For information about NFS security risks, see "Network File System Available for Cray Supercomputer" in the October 1989 *Newsletter* and "Network Security Risks of Using rhost" in the July 1990 *Newsletter*.

To view online information for Cray **tfetch** and **tdispose** commands in UNICOS, enter:

```
man tfetch
```

or

```
man tdispose
```

To view available online HELP for the new **CRAY** commands on the VAX cluster, enter:

```
HELP CRAY
```

Please report any difficulties to the User Services consultants at extension 2-5405.

GRAPHICS NEWS

CA-DISSPLA 11.0 GOES PRODUCTION IN CMS AND MVS, CA-DISSPLA 10.5 BECOMES "OLD," AND CA-DISSPLA 10.0 GOES AWAY

On Monday, September 17, 1990, CA-Disspla Version 11.0 (available for testing since April 1990) will become the production version in MVS. On Monday, September 24, 1990, CA-Disspla Version 11.0 will become the production version in CMS. Also on that date, CA-Disspla Version 10.5 will become the "old" version, and CTD will remove CA-Disspla Version 10.0 from the system.

Features of CA-Disspla 11.0 include:

- Object rendering: you can now request complex geometric objects in wire frame (see Figure 1), as well as fully shaded models.
- Processing of raster images: Disspla can read any digitally recorded raster image stored as a collection of pixels.
- Two-dimensional color shaded contours.
- Three-dimensional and four-dimensional shaded surfaces.
- Enhanced control of contour levels.
- Greek and Hebrew shaded fonts.
- Run-time device selection of dynamically loaded device drivers.

CA-Disspla 11.0

In MVS

In accordance with the vendor's installation conventions, the MVS Disspla libraries will no longer use the "SYS1" dataset name prefix but will use a "CA" dataset name prefix. Because the vendor uses explicit names within some Disspla internal subroutines, this new naming convention should make product upgrading easier for both CTD and users. In addition, two new data definition (DD) statements are necessary: "GO.FT44F001" and "GO.CADYNLIB" (*required* even if you are not using the Dynamically Loaded Device Driver feature). A sample Disspla 11.0 job stream is:

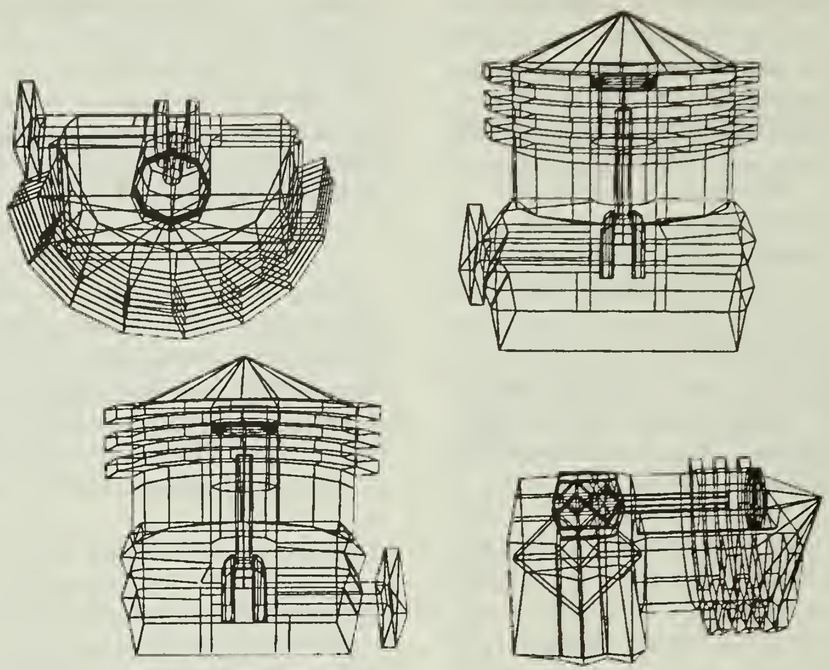

Figure 1: Wire Frame Object Produced by Using CA-Disspla 11.0

```
//jobname JOB REGION=nnnK
//stepname EXEC FORTVCLG,
// PRELIB='CA.DIS110.DISLIB.LOAD'
//FORTV.SYSIN DD *
      .
      .
Your Disspla program here
      .
      .
//GO.CADYNLIB DD DSN=CA.DIS110.DRVS.DYNLIB.LOAD,
// DISP=SHR
//GO.FT44F001 DD DISP=SHR,LABEL=(,,,IN),
// DSN=CA.DIS110.DRVS.GRAFPROD.SITEDATA
```

In CMS

Disspla 11.0 is available on the DISSPLA 1 minidisk. A sample CMS Disspla session is:

```
CP LINK DISSPLA 1 virtaddr RR
ACCESS virtaddr mode
GLOBAL TXTLIB INTLIB D110MOD DIS110A DIS110B
      VFORTLIB CMSLIB
GLOBAL LOADLIB VFLODLIB
FORTVS pgmname
LOAD pgmname (START CLEAR)
```

where "virtaddr" is some unused virtual address (for example, 99), "mode" is some unused filemode (for example, G), and "pgmname" is the name of your Disspla program (filetype FORTRAN assumed).

If you are using a protocol converter with your graphics device (for example, the Tektronix 4014 emulation with the tn3270 PC software), your GLOBAL TXTLIB statement should look like the following:

```
GLOBAL TXTLIB TESTPROT INTLIB D110MOD DIS110A
      DIS110B VFORTLIB CMSLIB
```

If you are using Disspla's Dynamically Loaded Device Driver feature, use the following GLOBAL LOADLIB statement:

```
      GLOBAL LOADLIB VFLODLIB DYNLIB
```

For explicit usage of CA-Disspla 11.0 in CMS and MVS, refer to the addendum to the *ANL Supplement to the CA-Disspla User's Manual* (ANL/TM 467). Both ANL/TM 467 and its addendum, along with the *CA-Disspla Users Manual Version 11*, Volumes 1 and 2 (RG 99 DS 1101S), are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

CA-Disspla 10.5 Available as "Old" Library

Although the CA-Disspla 10.5 libraries will continue to be available as the "old" library (as a contingency for users who need extra time in converting to Disspla 11.0), CTD encourages users to begin using Disspla 11.0.

In MVS

SYS1 libraries (for example, SYS1.DISLIBVS) will stay SYS1 libraries to avoid having to reinstall Disspla in MVS.

In CMS

CTD will move Disspla 10.5 libraries (for example, INTLIB15 TXTLIB, D105VSA TXTLIB, and D105VSB TXTLIB) to the DISSPLA 0 minidisk, *not* the GRAPHICS 0 minidisk.

CA-Disspla 10.0 To Be Removed

In MVS

CTD will remove SYS0 libraries (for example, SYS0.DISLIB, SYS0.DISLIBVS, and SYS0.DISSPLA.DATA) from MVS.

In CMS

CTD will remove Disspla 10.0 libraries (for example, INTLIB TXTLIB, DISLIBA TXTLIB, and DISLIBB TXTLIB) from the GRAPHICS 0 minidisk.

Users experiencing any difficulty moving their Disspla codes to Version 11.0 should contact the User Services consultants at extension 2-5405.

CTD PLANS TO DISCONTINUE GRAPHICS FOR IBM FULL SCREEN TERMINALS IN CMS

On September 30, 1990, CTD plans to discontinue the IBM graphics software product, Graphical Data Display Manager (GDDM), which enables Tellagraf, Cuechart, Disspla, and SAS/Graph to generate graphics on IBM full screen terminals (such as the IBM 3179 and the IBM 3279). Few people use IBM 327x terminals for graphics, and the GDDM software license costs the Laboratory over $17,000 annually. The removal of GDDM will not affect users who perform graphics in CMS on other terminal types (using X.25 and Telnet connections). Users concerned about the removal of GDDM should contact John Volmer at extension 2-5449 or at electronic mail address b32831@anlvm.ctd.anl.gov.

MANAGEMENT INFORMATION SYSTEMS

ADPO RECOMMENDS FY1991 PROJECT FUNDING

The Administrative Data Processing Oversight (ADPO) Committee has recommended funding for eight administrative computing projects beginning in FY1991. The Committee has recommended an allocation of more than a million dollars for management information systems for the Laboratory.

Three projects will expand the Integrated Financial System (IFS). One project will provide software allowing direct access to data for the end user. A second project will create a system to coordinate effort reporting and to make effort reports consistent across categories. A third project will begin to develop a budget system compatible with Laboratory reporting needs for divisions to use in setting up their own budget requirements.

In the people systems area, one project will replace the current Human Resource System (HRS) with an interactive reporting system in the Customer Information Control System (CICS). Another project will create the Applicant Information System (AIS) to provide more efficient handling of job applications and relevant reports for the divisions. A third project will begin the modernization of Human Resource business systems, building on the network of personal computers already in place.

The Argonne Information Management (AIM) System project will continue implementation of the interactive information retrieval system scheduled to become available in August 1990.

The Integrated Materials Management System (IMMS) project will select a vendor based on the Request for Proposal (RFP) to be available before the end of this fiscal year and will purchase the software necessary to begin the installation of this complex computerized purchasing and accounting system.

The funding recommendations from ADPO will now go to the Chief Operations Officer for his approval. More detailed descriptions of the proposals appear in *A Plan for Administrative Computing at ANL: FY1991 through FY1993* (to be published in September 1990).

INTEGRATED FINANCIAL SYSTEM UPDATE

In July 1990, the Integrated Financial System (IFS) Project Team split the reporting file into smaller subsets to reduce the time needed to produce the month-end reports for the Laboratory's financial users. In June 1990, the month-end reports required about 52 hours to execute. The July 1990 month-end IFS reports (about 1,500 jobs) completed executing in about 19 hours. However, this operation caused a large printing backlog (about 2.5 million lines), which required another 24 hours to print. In August 1990, we suppressed the printing of the job control messages that appear at the beginning of each IFS report print-out to reduce the number of print lines. This change has reduced the number of boxes of paper used for the reports by about 10 (approximately a one-sixth reduction), has allowed the reports to be printed faster, and has decreased the users' printing costs. All MVS users have benefited from these modifications, because of the reduced impact of the IFS month-end processing and printing.

The Project Team has been testing the new version of Information Expert (IE). This version provides three different levels of ad hoc reporting and query, allowing users to select the level most appropriate for their tasks. We have also been testing Expertlink, which gives personal computer users upload and download capabilities and provides IBM 3270 emulation with both dial-up and controller access. Expertlink can download data to Lotus 1-2-3, DBase, American Standard Code for Information Interchange (ASCII), and Data Interchange Format (DIF) files.

Progress on all phases of the IFS project will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

VAX/VMS NEWS

VMS 5.3 TO BE INSTALLED

CTD has determined that all of the products on the Argonne central VAX cluster are now compatible with VMS 5.3. Therefore, we will upgrade the system to VMS 5.3 on the weekend of September 8, 1990.

Some important new features are:

- Enhanced Extensible VAX Editor (EVE).
- TCP/IP transport for the X Window System.
- X Window System enhancements.

After the installation, CTD can begin to interface the Multinet TCP/IP software and the X Window System. This interface will enable users who have workstations with TCP/IP networking and the X Window System to create sessions with the central VAX cluster. Disspla users will also be able to create images for X Window workstations.

To view a detailed list of the new features in VMS 5.3, enter (on the central VAX cluster):

```
HELP V53
```

After the upgrade, the entire central VAX cluster will be running VMS 5.3.

SPECIAL BATCH QUEUES ON THE VAX 8700 COMPUTER CAN PROCESS LARGER JOBS MORE EFFICIENTLY

CTD has expanded the large job processing capabilities of the Argonne central VAX 8700 computer in the SPECIAL batch queues (SPECIAL_X_BATCH and SPECIAL_Y_BATCH). The memory parameter of those queues (WSEXTENT) is now set to a value of 100,000 pages, which permits jobs with large memory requirements to acquire 50 megabytes of real memory when that memory is available. This change allows very large jobs to execute with fewer page faults and to accumulate lower charges because of the decreased processing overhead.

Currently, the VAX 8700 computer is configured to run programs with memory requirements of up to 400,000 pages (200 megabytes). A dedicated paging file consisting of one million blocks (or 500 megabytes) allows concurrent execution of several large jobs. To run large programs on the VAX 8700 computer, users need to request larger page file quotas for the accounts that will run the programs. You can determine the page file quota required for a job to run by examining the output of the **LINK** command with the **/MAP** option. (See the item "virtual memory allocated" on the image synopsis page of the map file.) If you try to run a large program that you have not linked (such as ANSYS), you may receive an error message stating that you have exceeded your quota. Use the **SHOW PROCESS** command to display your current paging file quota value. The maximum program size default for new accounts is 10 megabytes. To request a page file quota change, call Account Services at extension 2-5425.

HOW TO USE THE 8MM CARTRIDGE TAPE DRIVES ON THE CENTRAL VAX CLUSTER

CTD has acquired an MA224 tape subsystem (from Micro Technology) based on the Exabyte 8mm tape drive. The MA224 is a factory configured dual-drive subsystem of VAX cluster compatible tape back-up subsystems that conforms to Digital Equipment Corporation (DEC) Digital Storage Architecture (DSA). A single tape drive provides up to 2.3 gigabytes of storage.

CTD is making available the same services for 8mm tapes as for 9-track tapes, except there is no credit for returning tapes and no cleaning and testing services. Although the 8mm tape services and the 9-track tape services cost the same, the 8mm tape holds almost 15 times as much data as a 9-track tape!

To use the 8mm tape drives, ask for Device Name "$1$MUA181:" or "$1$MUA182:". If specified, the DENSITY parameter is ignored, and the default of 43K is used.

For more information about tape management and how to use tapes on the central VAX 8700 computer, see Chapter 5 in *Using the Central VAX 8700 Computer at ANL* (ANL/TM 455, REVISION 2).

USE OF ACCESS CONTROL LISTS TO IMPROVE FILE MANAGEMENT AND PROTECTION

For certain projects, you may need to control access to a set of files among a group of users. The group may be one or two individuals or a larger group. The members could be in the same cost center or could belong to different cost centers. You may want to grant or deny different types of access to a subset of users in the group. For example, you might want some individuals to be able to create or update certain files and other individuals only to be able to read or execute files.

VMS offers two types of protection to control access to files. The default protection is user identification code (UIC)-based protection. A second (and optional) type of protection is access control list (ACL)-based protection. An ACL defines the type of access you want to grant or deny to a particular user or group of users. An ACL is composed of one or more entries called an access control entry (ACE). The following example creates a single ACE ACL for the file TAP.FOR:

```
$ SET FILE/ACL=(IDENTIFIER=B12345,ACCESS=READ
     +WRITE+EXECUTE+DELETE) TAP.FOR
```

It allows user b12345 to read, write, execute, or delete the file TAP.FOR. If you want to share the file with additional users, you need to create an ACE for each user. You can define the type of access that is appropriate for each user.

Each file and directory to be shared needs a separate ACL. If you allow other users to create files in your directory (that is, the files are not owned by you) that you wish to access, then you will need to define an ACE that grants you access to the file. Users who are allowed write access to files in your directory need a disk quota on your physical disk.

Using VMS usernames as the identifier is impractical for a group larger than a few individuals, especially if the number of directories and files to be shared is substantial. Instead of using VMS usernames as the identifier, a system administrator can create a special VMS identifier for you that you can use as a name for the group (for example, MYGROUP). Then, using the file in the above example, an ACL could be set for file TAP.FOR with the DCL command:

```
$ SET FILE/ACL=(IDENTIFIER=MYGROUP,ACCESS=READ
    +WRITE+EXECUTE+DELETE) TAP.FOR
```

A system administrator can grant this identifier to the account of each individual in the group. If you wish to permit different classes of access for different users, you can have an identifier defined for each access class. For example, if one or more users were allowed to create new application files or executables, a system administrator can create an identifier (for example, MYGROUP_MGR) that defines this usage class. Other group members might be permitted to only execute and read these files. A system administrator can create and grant an identifier for this usage class (for example, MYGROUP_USER) to these users.

In addition to the **SET FILE/ACL** command, you can also create ACLs with the editor:

```
        $EDIT /ACL file
```

The use of wildcards and command qualifiers can simplify ACL creation and maintenance, so that you need not enter a command for each file or directory in the file system.

For additional information on UIC-based and ACL-based protection, see "Maintaining Accounts and System Security" in *Guide to Using VMS 5.2* (AA-LA05A-TE), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

For more information or assistance setting up ACL-based protection, call the User Services consultants at extension 2-5405.

BITS & BYTES

WYLBUR EXEC PRINT DEFAULTS TO CHANGE

To encourage users to use less paper and to reduce the amount of unclaimed output printed locally in Building 221, CTD will gradually change the print defaults for Wylbur execs. Currently, by default, execs that submit MVS batch jobs print the resulting output at the user's specified print destination. Users can request output to be held for FETCH by so indicating at the appropriate prompt. In the future, CTD will change the execs so that FETCH is the default and print destinations must be specified. Wylbur execs that only generate a printed listing, for example, LISTLIB, will continue to operate unchanged.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD AUGUST 7, 1990

Cy Adams (Engineering Physics), standing in for Dotti Bingaman (Environmental Assessment and Information Sciences), opened the meeting at 3:03 p.m.

Overview of Proposed CTD Budget for FY1991. Mike Boxberger (Computing and Telecommunications) presented the current budget planning for FY1991. The proposed budget is a little over 10 million dollars. If the expected income and the Laboratory indirect charge percentages remain the same, there will be approximately 7.475 million dollars to be recovered through floors. This year this figure was approximately 6.2 million dollars. I Laboratory indirect charges are raised to cover networking charges, next year's floors will be slightly higher than this year's floors. CTD will present the proposed budget with its various options to the Computing Policy Committee.

Mike also showed the requests CTD will make for General Purpose Equipment (GPE) funds. CTD has ranked these requests and has included a graphics superworkstation, scientific visualization output device upgrades, a magnetic tape system and an additional disk storage controller for the VAX cluster, a high-speed network facility, an additional 32-port Hydra Protocol Converter, and disk storage for a production Unix system. CTD does not expect to get all these items, since the Laboratory-wide requests far exceed the available money. If the Laboratory grants some of the requests, the CTD budget will be reduced, because some requests appear in both places.

Proposal for Transferring Sequent Balance from MCS to CTD. John Volmer (Computing and Telecommunications) reported on the proposed transfer of a Sequent Balance multi-processor Unix computer from the Mathematics and Computer Science Division to the Computing and Telecommunications Division. The Sequent Balance has 24 NS32032 processors providing an aggregate 1.42 Mflops of computer power. It has 24 megabytes of real memory with a shared memory MIMD architecture, which allows each processor to access all of the shared memory. John estimated that the system could handle 20 to 40 users with light-to-moderate interactive needs. The software on the system includes Unix BSD 4.2 with some 4.3 extensions, compilers for C and parallel Fortran, and the KAP parallelizing preprocessor. CTD would have to purchase a disk system for the Balance.

Potential uses for the system are (1) interactive Unix service, (2) a front-end for the Cray, (3) a central mail server, (4) an X-Windows client, (5) an Internet gateway, (6) an alternative to Wylbur, (7) a CTD Unix preparation platform, and (8) a parallel environment for debugging parallel codes. It is expected that the cost of the system would be about $54,130 per year. This price does not include system and user services personnel time. Because the future of computing seems to be in parallel systems, this is a way for CTD to move to parallel computing now without making a larger investment in a new parallel system.

Users were primarily concerned with whether this would be the best use of the money and that the system is old and slow by modern standards and could not really be used for production work. Other users pointed out that much work is being done on the Cray that does not vectorize and would be ideal for a parallel system. This computer would allow users to gain experience with parallel programming, and it provides some of the best software for restructuring programs to improve their performance.

New GOSIP Network Standard and Implications on New Procurement. Larry Amiot (Computing and Telecommunications) reported that a new government networking standard, GOSIP, has been adopted and may have an impact on new procurement. This standard is a subset of the international networking standard, Open System Interconnect (OSI), and provides an open system interconnect model, interface standards for seven layers of interface from physical to applications, multiple alternatives for implementations, and interoperability among dissimilar systems. As of August 15, 1990, GOSIP Version 1 compliance (which includes file transfer and message handling) is mandatory for all government agencies and contractors. Additional versions will be mandatory over the next few years. Guidelines are still being worked out about what system would be required to be GOSIP compatible, but they include being a federal computer system, a new system or major upgrade to an existing system, or a gateway to networks. If a system has a gateway, it must be GOSIP compatible on the network side, but may be anything on the system side. If GOSIP is applicable for the system, the purchased products must be compatible. While a waiver may be requested to remove GOSIP compatibility, the process for getting the waiver is such that it may be unlikely. Better guidelines are being defined to determine if GOSIP is applicable for a system or new purchase. Products are becoming available that are GOSIP compatible. CTD is also working with DOE and Procurement to develop a transition plan for movement to GOSIP compliance.

The CUG meeting adjourned at 4:30 p.m.

Ken Miles, CUG Secretary

WORKLOAD STATISTICS (JUNE 29 THROUGH JULY 30, 1990)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,254	1,258	486
Wylbur	1,702	1,712	383
MVS TSO	57	57	8
CICS	1,702	1,712	143
MVS Batch	2,254	2,252	716
VAX/VMS	683	657	333
Cray	367	384	153
All Systems	2,254	2,252	1,051

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION	CPU
	PRIME	NIGHT	WEEKEND	TOTAL	TIME (HRS)	TIME (HRS)
INTERACTIVE						
CMS	10,837	2,648	2,183	15,668	37,068.1	100.01
Wylbur	7,829	263	388	8,480	8,651.2	6.19
MVS TSO	364	2	2	368	298.4	0.84
CICS	n.a.	n.a.	n.a.	n.a.	n.a.	4.67
VAX/VMS	15,803	2,219	2,077	20,099	19,494.6	150.59
Cray	2,549	319	250	3,118	1,547.6	26.21
IBM BATCH						
Class U	9,769	1,762	1,399	12,930	n.a.	25.45
Class W	20,003	1,859	1,624	23,486	n.a.	128.68
Class X	2	604	10	616	n.a.	46.70
Class Y	50	192	1,393	3,028	n.a.	58.61
Nonmain	14,165	1,690	1,245	17,100	n.a.	0.00
Total	43,989	6,107	5,671	57,160	n.a.	259.44
CRAY BATCH						
u	2,549	319	250	3,118	n.a.	84.39
w	2,096	305	343	2,744	n.a.	244.43
x	56	56	106	218	n.a.	48.79
y	1,736	686	673	3,095	n.a.	232.23
Total	6,437	1,366	1,372	9,175	n.a.	609.84
VMS BATCH						
W BATCH	1,805	565	385	2,755	n.a.	80.74
X BATCH	11	48	19	78	n.a.	121.28
Y BATCH	0	0	24	24	n.a.	47.08
Total	1,816	613	428	2,857	n.a.	249.10

INPUT/OUTPUT

Lines Printed	
Local	54,915,260
Remote	54,681,197
Fiche	41,339,169
Cards Punched-Local Only	2,244
Tape Mounts	7,506
Microfiche Developed	5,155
Microfiche Frames Developed	935,763

GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	41	n.a.
Matrix 35mm Color	93	270
Matrix-8 x 10	1	1
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	0	0
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	0	0
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	24,836
New Tapes Saved	247
Tapes Released	966
Datasets Exported to Tape	2,227
Datasets Imported from Tape	720

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (JUNE 29 THROUGH JULY 30, 1990)

	Monthly Totals		Scheduled			Unscheduled	
		Hardware	Software	Other	Hardware	Software	Other
			CMS				
All Shifts							
Interruptions	9.00	1.00	6.00			2.00	
Hrs Unavailable	18.10	6.50	10.01			1.58	
MTF/Unscheduled	374.95					374.95	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	3.00	1.00				2.00	
Hrs Unavailable	8.08	6.50				1.58	
MTF/Unscheduled	127.95					127.95	
			WYLBUR				
All Shifts							
Interruptions	10.00	1.00	6.00		1.00	2.00	
Hrs Unavailable	11.96	6.58	4.66		0.21	0.50	
MTF/Unscheduled	252.01				756.03	378.01	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	3.00	1.00			1.00	1.00	
Hrs Unavailable	6.88	6.58			0.21	0.08	
MTF/Unscheduled	128.55				257.11	257.11	
			MVS TSO				
All Shifts							
Interruptions	9.00	1.00	6.00		1.00	1.00	
Hrs Unavailable	11.88	6.58	4.66		0.21	0.41	
MTF/Unscheduled	378.05				756.11	756.11	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00	1.00			1.00		
Hrs Unavailable	6.80	6.58			0.21		
MTF/Unscheduled	257.20				257.20		
			JES3				
All Shifts							
Interruptions	8.00	1.00	6.00			1.00	
Hrs Unavailable	11.51	6.58	4.51			0.41	
MTF/Unscheduled	756.48					756.48	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00	1.00					
Hrs Unavailable	6.58	6.58					
MTF/Unscheduled							
			CICS				
All Shifts							
Interruptions	1.00					1.00	
Hrs Unavailable	0.33					0.33	
MTF/Unscheduled	767.66					767.66	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00					1.00	
Hrs Unavailable	0.33					0.33	
MTF/Unscheduled	263.66					263.66	
			VAX/VMS (VAX 8700)				
All Shifts							
Interruptions	3.00		2.00		1.00		
Hrs Unavailable	1.75		1.41		0.33		
MTF/Unscheduled	766.25				766.25		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00				1.00		
Hrs Unavailable	0.33				0.33		
MTF/Unscheduled	263.66				263.66		
			CRAY				
All Shifts							
Interruptions	8.00	5.00			2.00	1.00	
Hrs Unavailable	21.41	16.28			4.73	0.40	
MTF/Unscheduled	248.86				373.29	746.58	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00					1.00	
Hrs Unavailable	0.40					0.40	
MTF/Unscheduled	263.60					263.60	

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (JUNE 29 THROUGH JULY 30, 1990)

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
	ADVANCED PHOTON SOURCE						
130	ADVANCED PHOTON SOURCE DIV	$231	$1,070	$0	$632	$166	$2,100
272	ADVANCED PHOTON SOURCE	$135	$0	$0	$32	$52	$219
341	APS ACCELERATOR PHYSICS	$352	$4,329	$1,147	$259	$61	$6,148
343	APS LINAC	$0	$288	$0	$2	$0	$290
344	APS RF	$5	$0	$0	$2	$0	$7
345	APS VACUUM	$6	$1,778	$0	$22	$85	$1,892
347	APS CONTROLS	$69	$3	$0	$1	$5	$78
348	APS MAGNETS	$92	$1,072	$0	$197	$5	$1,365
349	APS POWER SUPPLIES	$46	$0	$0	$1	$0	$47
350	APS DIVISION MANAGEMENT	$24	$0	$0	$0	$15	$39
351	APS INSERTION DEVICES	$1,459	$419	$0	$117	$404	$2,399
352	APS BEAM LINE FRONT ENDS	$4	$0	$0	$0	$134	$137
353	APS BEAM LINE INSTRUMENTATION	$22	$0	$0	$0	$0	$22
360	APS CONVENTIONAL FACILITIES	$9	$1	$0	$0	$0	$10
361	APS PROJECT DIRECTION	$921	$3	$0	$112	$102	$1,137
362	APS MANAGEMENT GENERAL	$127	$0	$0	$0	$99	$226
SUBTOTAL		$3,502	$8,963	$1,147	$1,377	$1,126	$16,116
	ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	BIO & MED RES DIV	$1,546	$1,771	$263	$878	$1,139	$5,595
125	TECHNOLOGY TRANSFER CENTER	$116	$0	$0	$14	$118	$248
149	ENVIROMMENTAL RESEARCH DIV	$2,389	$528	$1,337	$730	$470	$5,454
155	ENERGY SYSTEMS DIVISION	$9,519	$3,897	$25,000	$1,975	$1,631	$42,023
165	ENV ASSESS & INFO SCI DIV	$7,983	$21,220	$21,619	$2,910	$4,307	$58,039
174	ENER/ENV/BIO PROG DIR	$16	$0	$0	$0	$100	$116
246	ES-NAT'L ENERGY SOFTWARE CTR	$130	$0	$0	$565	$437	$1,133
274	ENER/ENV/BIO RES PROG ADM	$118	$0	$0	$1	$132	$251
SUBTOTAL		$21,818	$27,417	$48,219	$7,073	$8,334	$112,861
	ENGINEERING RESEARCH						
102	EBR-II PROJECT-ANL WEST	$3,180	$19	$28	$1,870	$141	$5,239
107	CHEMICAL TECHNOLOGY DIVISION	$875	$164	$0	$1,032	$2,254	$4,325
112	REACTOR ANAL & SAFETY	$17,325	$522	$24,563	$6,561	$4,668	$53,640
114	MATLS & COMP TECH DIV	$4,273	$3,444	$209	$2,993	$1,524	$12,442
115	ENGINEERING PHYSICS DIVISION	$50,476	$13,643	$116,854	$12,854	$11,461	$205,288
117	APPLIED PHYSICS-ANL WEST	$2,873	$4	$22,776	$530	$378	$26,561
118	REACTOR EXP & EXAM DIV	$14,350	$526	$5,676	$685	$230	$21,466
119	ANALYTICAL LABORATORY ANL-WES	$0	$0	$0	$0	$100	$100
171	ENGRG RES PROG DIR	$4	$0	$0	$0	$105	$109
197	SPECIAL PROJECTS OFFICE	$735	$1	$0	$14	$262	$1,011
211	ENGINEERING PHYSICS DIVISION	$126	$16	$0	$6	$2,894	$3,042
269	CHEM TECH DIV-ANALYTICAL CHEM	$112	$0	$0	$5	$111	$228
271	ENGRG RES PROG ADMIN	$349	$0	$0	$18	$279	$646
SUBTOTAL		$94,676	$18,339	$170,106	$26,567	$24,407	$334,096
	PHYSICAL RESEARCH						
105	MATERIALS SCIENCE DIVISION	$4,777	$5,343	$9,127	$2,923	$631	$22,801
109	PHYSICS DIV	$4,816	$1,206	$618	$1,704	$640	$8,984
120	CHEMISTRY DIV	$3,077	$7,923	$48,931	$992	$303	$61,225
136	INT PULSE NEUT SOURCE PROG	$131	$526	$401	$230	$195	$1,483
137	HIGH ENERGY PHYSICS DIV	$5,520	$1,651	$1,280	$723	$915	$10,089
139	DIV OF EDUCATIONAL PROGRAMS	$450	$0	$0	$85	$149	$683
145	MATHEMATICS & COMPUTER SCI DI	$309	$44	$6,501	$3,297	$4,487	$14,638
146	CTD DIV - SCI APPL & RES	$30	$1	$0	$87	$3	$122
273	PHYSICAL RESEARCH PROGRAM ADM	$69	$0	$0	$17	$137	$222
SUBTOTAL		$19,179	$16,694	$66,858	$10,057	$7,460	$120,248
	EXTERNAL						
751	FERMI NATIONAL LABORATORY	$882	$0	$0	$460	$418	$1,760
752	NAVY	$11,479	$0	$0	$1,435	$5,308	$18,223
753	MORGANTOWN ENERGY TECH CENTER	$17	$0	$0	$650	$0	$667
754	DEPARTMENT OF ENERGY AT ANL	$0	$0	$0	$1	$0	$1
756	LOS ALMOS	$26	$0	$0	$0	$0	$26
760	ABBOTT LABORATORIES	$13	$0	$166	$0	$0	$179
763	GENERAL ELECTRIC COMPANY	$0	$1	$0	$0	$0	$1
765	WESTINGHOUSE HANFORD COMPANY	$0	$2	$4	$0	$0	$6
766	BECHTEL NATIONAL, INC.	$0	$160	$697	$99	$1	$957
767	NUMERICAL ALGORITHMS GROUP, I	$0	$0	$12	$0	$0	$12
771	PURDUE UNIVERSITY	$4	$0	$0	$0	$0	$4
774	BATTELLE	$0	$0	$0	$0	$0	$0
775	SMITHSONIAN	$0	$0	$0	$0	$3	$3
777	UNIVERSITY OF CHICAGO AT ANL	$29	$0	$0	$126	$0	$155
778	ARGONNE CREDIT UNION	$9	$0	$0	$0	$0	$9
779	UNIVERSITY OF ILLINOIS AT CHI	$9	$0	$0	$0	$0	$9
780	NEW BRUNSWICK LABORATORY	$18	$0	$0	$0	$0	$18
781	STATE OF ILL. DEPT. MENTAL HE	$0	$0	$0	$0	$7	$7
782	PACKER ENGINEERING	$9	$63	$1	$5	$18	$95
783	WEST VALLEY NUCLEAR SERVICES	$18	$0	$0	$2	$0	$20
784	SSC LABORATORY	$9	$1,121	$169	$141	$15	$1,454
SUBTOTAL		$12,523	$1,346	$1,050	$2,918	$5,769	$23,607

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
			OPERATIONS				
234	SUPP SERV DIV-HEALTH PHY	$240	$0	$0	$10	$159	$409
235	SUPP SERV DIV-ENV SAFE HEALTH	$924	$0	$0	$80	$444	$1,448
236	SUPPORT SERV DIV - FIRE DEPT	$19	$0	$0	$0	$102	$121
245	COMPUTING AND TELECOM DIV	$18,508	$0	$0	$3,622	$3,049	$25,179
247	COMP & TEL DIV - COM SERV	$1,635	$0	$0	$251	$1,352	$3,239
260	SUPP SERV DIV-GRAPHIC ARTS	$442	$161	$0	$165	$322	$1,090
275	OFFICE OF PUBLIC AFFAIRS	$527	$0	$0	$142	$165	$833
276	OFC PUB AF - MOTN PIC UNIT	$98	$0	$0	$1	$24	$124
296	TELECOM COST/RECOVERY	$0	$0	$0	$285	$0	$285
315	SUPP SERV DIV-MATLS & SERV	$2,291	$0	$0	$612	$495	$3,399
316	PLANT FAC & SERV-VEH MAINT	$0	$0	$0	$0	$160	$160
317	PLANT FAC & SERV-DRIV&RIG SER	$17	$0	$0	$1	$100	$117
319	SUPP SERV DIV-TRAVEL OFC	$5	$0	$0	$174	$100	$279
322	SUPP SERV DIV-PROCUREMENT	$60	$0	$0	$5	$104	$169
333	QA, ENVIR & SAFETY OFC	$145	$2	$0	$22	$198	$366
336	SUPP SERV DIV - INSPECTION	$32	$0	$0	$0	$5	$37
340	APS DIVISION MANAGEMENT	$39	$0	$0	$0	$40	$78
400	OFC OF CHIEF FIN OFFICER	$51,883	$0	$0	$2,114	$12,550	$66,547
401	ACCOUNTING	$0	$0	$0	$90	$100	$190
402	OFC CHIEF FIN OFCR-DATA ENTRY	$13	$0	$0	$125	$0	$138
403	BUDGET OFFICE	$35	$0	$0	$0	$220	$255
410	HUMAN RESOURCES DEPARTMENT	$14,136	$0	$0	$1,215	$1,751	$17,102
412	AFFIRM ACTION PROGRAM	$85	$0	$0	$35	$102	$222
501	PLANT FAC & SERV-BLDG MAINT	$46	$0	$0	$42	$383	$472
502	PLANT FAC & SERV-INSTALLATION	$14	$0	$0	$3	$100	$117
503	PLANT FAC & SERV-GROUNDS	$0	$0	$0	$0	$100	$100
504	PLANT FAC & SERV-CUSTODIAL	$0	$0	$0	$0	$100	$100
505	PLANT FAC & SERV-WASTE MGMT O	$61	$0	$0	$43	$100	$204
506	PLANT FAC & SERV-PLANT MGR OF	$876	$0	$0	$23	$384	$1,283
510	PLANT FAC & SERV-UTILITY SYST	$0	$0	$0	$0	$100	$100
512	PLANT FAC & SERV-FAC PLNG/ENG	$443	$0	$0	$27	$175	$645
530	SITE MGRS OFC-ANL WEST	$22	$0	$0	$0	$101	$123
531	PERSONNEL-ANL WEST	$143	$0	$0	$19	$100	$262
532	SPECIAL MATLS-ANL WEST	$954	$0	$0	$250	$285	$1,489
533	ACCOUNTING-ANL WEST	$0	$0	$0	$0	$100	$100
534	PURCHASING-ANL WEST	$0	$0	$0	$0	$118	$118
535	SECURITY - ANL WEST	$22	$0	$0	$0	$100	$122
536	SAFETY STAFF-ANL WEST	$201	$0	$0	$2	$102	$305
537	INFORMATION SERVICE-ANL WEST	$0	$0	$0	$0	$100	$100
538	MATLS HANDLING-ANL WEST	$135	$0	$0	$37	$100	$273
548	ANL WEST GENERAL EXPENSE	$297	$0	$0	$54	$0	$351
550	COMPUTER APPL & SERV - ANL-W	$149	$0	$0	$54	$112	$314
551	RAD MONITORING-ANL WEST	$0	$0	$0	$0	$100	$100
554	MACHINE SHOP-ANL WEST	$32	$0	$0	$2	$100	$134
556	SITE ENGRG-ANL WEST	$92	$0	$0	$13	$103	$207
557	PLANT SERVICES-AW-SERVICE REQ	$87	$2	$0	$12	$100	$201
558	PLANT SERVICES-AW-FUNCTION	$4	$0	$0	$0	$0	$4
559	FOOD SERVICES - ANL WEST	$0	$0	$0	$0	$100	$100
561	OFC OF QUALITY ASSURANCE - AW	$4	$0	$0	$0	$101	$105
563	TALENT RESOURCE POOL-ANL WEST	$0	$0	$0	$0	$100	$100
SUBTOTAL		$99,095	$9,171	$0	$12,201	$27,815	$148,282
TOTAL		$250,793	$81,931	$287,380	$60,193	$74,910	$755,208

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 708)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-3270	n.a.	972-3270
X.25 Terminal Multiplexor 300 to 19.2K Bits Per Second(Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-2525	n.a.	972-2525
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-8700	n.a.	972-8700
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-5588	n.a.	972-5588
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920

Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	**VM/SP**	**VMS**	**MFEnet Gateway**
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.

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Argonne National Laboratory
Computing and Telecommunications Division
September and October 1990

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering six classes. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals:	To develop an overview of available computing facilities and services provided by CTD.
Length of Class:	One 3-hour session
Date and Time:	September 12, 1990 (Wednesday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Suggested Reading:	*Guide to Computing at ANL* (ANL/TM 336) *Recommended Documentation for Computer Users at ANL* (ANL/TM 379)
Instructor:	Fred Moszur

INTRODUCTION TO VAX/VMS

Goals:	To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).
Length of Class:	One 3-hour session
Date and Time:	September 13, 1990 (Thursday), 9:00 a.m. to 12:00 noon
Location:	Building 221, Room A-261
Instructor:	Dave Lifka

INTRODUCTION TO UNICOS

Goals:	To learn the basics of the Cray UNICOS file system, space management, and shell programming, as well as basic Unix commands. To learn how to use the Network Queuing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the IBM MVS front-end station and the Laboratory-Wide Local Area Network.
Length of Class:	Two 3-hour sessions
Dates and Time:	September 13, 1990 (Thursday), 1:30 p.m. to 4:30 p.m. September 20, 1990 (Thursday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Suggested Reading:	*A Practical Guide to UNIX System V* (0-8053-8915-6) *UNICOS Primer* (SG-2010)
Instructor:	Tom Canfield

PROGRAMMING IN VAX/VMS

Goals:	To learn to use the VAX/VMS system. This class will include VAX Fortran programs, suggestions for writing basic Digital Command Language (DCL) command procedures (including a LOGIN.COM), the usage of the VMS system debugger and the interprocess communications features, and an overview of the aspects of VMS internals affecting program performance.
Length of Class:	One 3-hour session
Date and Time:	September 20, 1990 (Thursday), 9:00 a.m. to 12:00 noon
Location:	Building 221, Room A-261
Instructor:	Dave Lifka

INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

Goals:	To learn to use Wylbur, an interactive system that provides a convenient interface for IBM MVS batch processing. To learn about the IBM MVS batch system at Argonne (including how to compile and execute programs and to obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for IBM batch execution.
Length of Class:	One 3-hour session
Date and Time:	September 25, 1990 (Tuesday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Suggested Reading:	*SLAC Wylbur Tutorial* *OBS Wylbur Reference Manual*
Instructor:	Mike Thommes

USING CMS WITH IBM 3270-COMPATIBLE DISPLAY TERMINALS (RESCHEDULED)

Goals:	To learn to use CMS with an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or a line-oriented terminal capable of using the Hydra Protocol Converter to send and receive electronic mail; to write documents and memos; to organize information in files; to create program, text, and data files; to manipulate files with the editor; to invoke programs like statistical and graphics packages; and to get printed reports.
Length of Class:	One 2-hour lecture One 1-hour lab
Date and Time:	October 3, 1990 (Wednesday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-216
Suggested Reading:	*IBM VM System Product: CMS Primer* (SC24-5236) *CMS at ANL* (ANL/TM 423)
Instructor:	Pete Bertoncini

COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH	Introduction and Advanced Concepts of Xedit

DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	**Course Title**
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

LUME 21 NUMBER 10 OCTOBER 1990

DEPOSITORY
OCT 29 1990
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

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COMPUTING AND TELECOMMUNICATIONS DIVISION
Argonne National Laboratory
Building 221
Argonne, Illinois 60439-4822
FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	**Phone**	**Electronic Mail Address**
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Computer Network	Bob McMahon (Acting)	B239	2-7270	B17385 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Data Communications	Linda Winkler (Acting)	B251	2-7236	B32357 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	B159	2-7329	B32848 AT ANLVM
Planning, Finance, and Administration	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.1, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

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COMPUTING COMMENTS

PARDON OUR DUST AGAIN!

The Computing and Telecommunications Division (CTD) has several construction projects planned for the first floor of Building 221 (1) to be better able to provide new services, (2) to arrange for more efficient operations of current services, (3) to provide needed office space for CTD employees, and (4) to make more office space available for residents of Building 221. As construction progresses, computer users who frequent Building 221 will encounter the following planned changes:

- The current Workstation Evaluation and Demonstration Room (Room A-142) will move to Room D-118 (a short distance from the lobby).

- A new Scientific Visualization Facility will reside in Room A-142. Specialized video recording equipment and graphics workstations will provide animation and other visualization services.

- The User Services consultants will move from Room A-139 to a new room near the Computer Output and Document Distribution Area.

- Account Services will move from Room A-147 to a new room near the Computer Output and Document Distribution Area.

- The Apple LaserWriter self-service printer will move to the Computer Output and Document Distribution Area. The computer operators will distribute the printed output in the output bins.

- The self-service impact printer will be decommissioned. Users who need to print impact output in Building 221 can send their output to ANLOS.1403. The computer operators will distribute the printed output in the output bins.

- The shelves in Room A-134 for unclaimed output will disappear. Unclaimed output for onsite users will be mailed to them. Unclaimed output for offsite users will be held for 30 days and then discarded.

- The page copier will move into the corner of the A and D wings near Room D-118.

- The maintenance vendor personnel will move to the area formerly occupied by the IBM 3033 computers and the film processing room.

During the construction, we expect little, if any, interference with services. During the various personnel relocations, CTD will make every effort to minimize user inconvenience or confusion.

HIGH-PERFORMANCE COMPUTING SEMINAR

The series of high-performance computing seminars is continuing. An upcoming talk for November 1990 is:

Anna Tsao, Systems Research Center
To be announced
Friday, November 2, 1990

Check the *Argonne Bulletin* and the special announcements for the times and locations of the seminars. To have your name added to the distribution list for abstracts, contact Claudette DaCosse at extension 2-5415.

MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASS

The Mathematics and Computer Science Division is offering a three-day class (9:00 a.m. to 4:30 p.m., on Wednesday, Thursday, and Friday, October 17-19, 1990) on how to write programs for the parallel computer systems in the Argonne Advanced Computing Research Facility (ACRF).

The class will cover the following topics: (1) parallelizing compilers, (2) using the VecPar interactive parallelization tool, (3) using the Argonne Monitor package, (4) using the STRAND parallel programming language, (5) programming the Butterfly TC2000, (6) programming the Distributed Array Processor (DAP), and (7) programming the Connection Machine-2. The class will include hands-on experience in writing and running programs on each machine. Participants will become familiar with the ACRF environment. Some knowledge of Unix and Fortran is necessary. To become familiar with Unix, refer to *A Practical Guide to UNIX System V* (0-8053-8915-6), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address huml@mcs.anl.gov. There is a $25.00 charge per person for universities, federal laboratories, and other government organizations and a $100 charge for commercial organizations.

COMPUTING CLASSES SCHEDULED FOR NOVEMBER 1990

During November 1990, CTD will offer four classes. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Using SAS (two three-hour sessions) includes examples of Statistical Analysis System (SAS) programs in CMS, although you can use the same SAS code in the MVS batch, VAX/VMS, and IBM PC systems. SAS is a powerful, easy-to-use computer system for data analysis. In addition to statistical analysis, SAS provides tools for information storage and retrieval, data modification and programming, report writing, and file handling. Some knowledge of CMS, MVS, VAX/VMS, or an IBM PC is necessary.

Using NCSA Imagetool for Desktop Scientific Visualization (one 3-hour session) demonstrates NCSA Imagetool for viewing data as raster images. Attendees should have a working knowledge of Fortran or C on the computer of their choice. Topics include C and Fortran programs that create data files for NCSA Imagetool, data scaling and interpolation, different machines on which NCSA Imagetool runs (Sun, IBM Personal Computer, Apple Macintosh, or any workstation that runs the X Window System), image file transfer to your workstation, and current output capabilities CTD offers.

Cray X-MP Architecture and Vectorization Techniques (two 3-hour sessions) is for users who want to optimize their Fortran program to take full advantage of the Cray X-MP/14 high-performance computer. Topics include Cray architecture, vectorization, optimization, performance analysis tools, and code examples.

Introducing the New SAS Version 6.06 (one 3-hour session) includes a two-hour class and a one-hour lab. This class introduces you to the most recent release of SAS for minicomputers and mainframes, Version 6.06. Currently, Version 6.06 is available on the VAX 8700 as a test version and should become available on the IBM mainframe under MVS and CMS within the next few months. With this version, SAS Institute has rewritten the SAS software in the C programming language and has greatly enhanced the user interface with more window panels than before. In addition, the PMENU (pull-down menus) facility allows you to move around within the SAS environment much like a user in the Apple Macintosh or Microsoft Windows environment. This class is a "must-attend" to get the full benefit of this new SAS version.

CRAY NEWS

VAX/VMS FRONT-END STATION FOR THE CRAY SHUT DOWN ON OCTOBER 1, 1990

On Monday, October 1, 1990, CTD decommissioned the Cray front-end station on ANLVG. Initially, we announced the station decommissioning in the April 1990 *Newsletter*. The July 1990 and September 1990 *Newsletters* announced the availability of a set of replacement tools for the station software. Feedback from a user survey and early replacement tool testing allowed CTD to add many improvements to the tools over the past few months.

The locally developed **tfetch** and **tdispose** commands provide replacements for the **fetch** and **dispose** commands. File transfer requests using **fetch** and **dispose** commands between ANLVG and the Cray will no longer work. If you have **fetch** or **dispose** commands in your UNICOS scripts that contain **-mVG** on the command line, the commands will fail. UNICOS man pages on the Cray describe the **tfetch** and **tdispose** commands.

On the VAX 8700, a new Cray command file, SYS_PUBLIC:CRAY_TCPIP.COM, provides replacements for the Cray station's **SUBMIT**, **KILL**, **STATUS**, and **JSTAT** commands. Telnet replaces the Cray station **CINT** command for interactive access to the Cray. To obtain HELP for the replacement Cray commands, enter the DCL command:

```
$ HELP CRAY
```

The decommissioning activities included the following items:

- Removal of the station software from the central VAX cluster.
- Replacement of the DCL command **CRAY** on ANLCV1 with execution of the CRAY_TCPIP.COM command file. Formerly, it submitted a batch job to ANLVG that executed the station software.
- Removal of the CRAY_SUBMIT_BATCH batch queue.
- Removal of the communications link hardware between ANLVG and the Cray. The Cray channel previously attached to the VAX front-end station will now provide a Fiber Distributed Data Interface (FDDI) connection to the Cray.

We will now use ANLVG primarily as a VMS print queue server. We have disabled user logins on this node.

If you have been a station user and need assistance converting to the station replacement tools, contact the User Services consultants at extension 2-5405.

MEASURING CRAY MEGAFLOPS

The Cray X-MP/14 high-performance computer is an important Laboratory resource because of its vector floating-point arithmetic hardware. The peak performance rating of the Cray is 235 million floating-point operations per second (Mflops). Even though typical production jobs perform at a fraction of the Cray's peak performance, attention to program optimization is important to use the Cray efficiently.

To permit CTD and Cray users to observe job performance, our resident Cray Research Inc. analyst has installed software routines to collect performance information for programs linked and run after July 23, 1990. A new command called **mflops** displays process performance statistics. The **mflops** command does not report on processes that consume less than 15 seconds of CPU time. In August 1990, the following ANL users achieved the top performance as reported by the new **mflops** command:

136 Mflops	Hans-Jochen Trost, HEP
102 Mflops	Frans Trouw, PNS
92 Mflops	Dan Anderson, CTD-SAR

We do not plan to list the users at the bottom of the performance list, but we do plan to contact these users to discuss more effective ways of using available computing resources. CTD uses the options of the **mflops** command to analyze performance and to work with users to vectorize poorly performing computer codes or to move these codes to other available systems. Moving inefficient codes off the Cray increases the availability of the Cray to codes that take advantage of the vector floating-point Cray hardware.

You can use the **mflops** command to display the performance of processes you have run recently. For more information about the **mflops** command, enter (in UNICOS):

```
man mflops
```

Users who have programs that consume more than one CPU hour per week and achieve less than 20 Mflops, should seek program tuning assistance. For assistance in optimizing Cray Fortran programs, attend the User Services "Cray X-MP Architecture and Vectorization Techniques" class described at the end of this *Newsletter*.

MANAGEMENT INFORMATION SYSTEMS

FY1990 ADMINISTRATIVE DATA PROCESSING PROJECTS COMPLETED

Following the recommendations of the Administrative Data Processing Oversight (ADPO) Committee, the Laboratory funded eight projects in Management Information Systems (MIS) for FY1990. The Injury System formed the final component in the Environment, Safety and Health System. The Benefits System and the Compensation Annual Review and Position Control System automated new segments of personnel management data, and the Human Resource System (HRS) Replacement project began to bring HRS users into a common environment with the other people systems.

The Integrated Financial System (IFS) installed a new release of the Dun and Bradstreet Software (DBS) Accounts Payable (AP) application and began installing the check writing function. CTD refined the user environment by adding new reports, modifying existing reports, and developing the Information Organizer (IO) System that enables users to maintain their own report selection criteria and to submit ad hoc financial reports. The Budget System project began the analysis process by meeting with users across the Laboratory. On the basis of those meetings, the project members determined that the original concept, which involved less central control and more use of divisional programs, was unacceptable and began to develop a different, more centralized approach.

The Argonne Information Management (AIM) System completed the conversion of the libraries' records to computer-readable form and began to install and implement the data analysis and retrieval functions of the new system. AIM is moving into the final stages of a multi-year project. A second multi-year project is reaching the point at which it will acquire software and begin development of an Integrated Materials Management System (IMMS). In FY1990, the project developed specifications and laid the groundwork for the procurement procedure. Over the next several years, IMMS will develop into a major Laboratory-wide system that will affect all aspects of purchasing, procurement, and charging of materials.

INTEGRATED FINANCIAL SYSTEM YEAR-END CLOSE

During the first two weeks of October 1990, the Office of the Chief Financial Officer (OCF) will close the books for FY1990. Consequently, the Integrated Financial System (IFS) Project Team will not submit user reports until October 12, 1990. Users should begin looking for their financial reports on October 15, 1990. If there is any change to this schedule, the IFS Project Team will update the status recording on extension 2-5466. For more information, call Nick Moore at extension 2-8075 or Donna Keto at extension 2-7262.

CTD will disable the report submission function of the Information Organizer (IO) System during the closing period. Users will still be able to use IO to update their report requests and selection criteria. To minimize the risk of receiving reports with the wrong data at year-end, we recommend that users do not change next year's selection criteria until the year-end reports have been produced.

The IFS Project Team wishes all users a Happy New Fiscal Year and looks forward to providing more IO capabilities and new online inquiry functions in FY1991.

Progress on all phases of the IFS project will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

MVS NEWS

BMDP 90 STATISTICAL PACKAGE AVAILABLE FOR TESTING IN MVS

On Monday, October 1, 1990, CTD made the Biomedical Computer Programs (BMDP) 1990 version statistical package from BMDP Statistical Software, Inc. available for testing in MVS.

MVS users can test the 1990 version of BMDP by using the following JCL:

```
//stepname EXEC XBIMED,PROG=programname
```

where "programname" is the name of the BMDP program to be run. MVS users who want to execute the 1990 version of BMDP with their Fortran 77 programs can enter:

```
//stepname EXEC XBIMEDT,PROG=programname
```

where "programname" is the name of the BMDP program to be run.

The BMDP 1990 software includes the following new enhancements:

- Eight new transformation functions:

Gaussian cumulative distribution
t cumulative distribution
Chi-square cumulative distribution
F cumulative distribution
Inverse Gaussian cumulative distribution
Inverse Chi-square cumulative distribution
Inverse t cumulative distribution
Inverse F cumulative distribution

- Two new programs: Maximum Likelihood Estimation (LE) and Polychotomous Logistic Regression (PR).

  LE estimates the parameters that maximize the likelihood function by using the iterative Newton-Raphson algorithm.

  PR computes the maximum likelihood estimates of parameters of logistic models for multinomial data.

- A major revision to Correspondence Analysis (CA).

  CA now performs Multiple Correspondence Analysis. Multiple Correspondence Analysis is an extension of Simple Correspondence Analysis to the case of three or more categorical variables.

BMDP and new features in the 1990 version are documented in the *BMDP Statistical Software Manual* (Volumes 1 and 2), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

MARK IV REPORT WRITER TO BE REMOVED FROM MVS

Several years ago, CTD discontinued maintenance for the Mark IV Report Writer package in MVS but continued to keep Mark IV available until users had either replaced the applications using Mark IV or they were no longer needed. There has been no usage of Mark IV in recent months. On Monday, October 15, 1990, CTD will remove Mark IV from the MVS system.

PERSONAL COMPUTING AND WORKSTATIONS

PC SAS VERSION 6.03 TO 6.04 UPGRADE AVAILABLE

Owners of PC SAS Version 6.03 can upgrade their software to Version 6.04 by using the upgrade kit available from CTD. The update process should take 15 to 20 minutes, depending on how your personal computer is configured. While the master diskettes contain updates for *all* the SAS PC software products, you will find the update process requires using only some of the diskettes. Considering the update time, the number of diskettes provided, and the number of diskettes actually required for the upgrade, you may not want to copy the master diskettes. Instead, you may want to use the master diskettes for your upgrade. Both 5.25" low density (25 diskettes) and 3.5" high density (6 diskettes) formats are available. Master diskettes are available for *overnight* loan only.

Some of the enhancements in Release 6.04 are:

- An expanded range of statistical abilities (PROC CALIS and PROC LOGISTIC). The CALIS procedure estimates parameters and tests the appropriateness of linear structural equation models by using covariance structure analysis. The LOGISTIC procedure fits linear logistic regression models for binary or ordinal response data by the method of maximum likelihood.
- IBM Video Graphics Adapter (VGA) capability
- Enhancements to the SAS micro-to-host link
- New graphics device drivers (for PC SAS/Graph owners)
- DBase IV file input capability

In addition to these enhancements, the upgrade kit contains fixes to many top priority Release 6.03 software bugs.

Complete details are in *Changes and Enhancements to SAS Software for Personal Computers, Release 6.04* (SAS Technical Report P-210), available at the Document Distribution Counter (Building

221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

If you prefer not to copy the master diskettes, but would like your own set, diskette duplication is available through SAS Institute, Inc. at the following costs:

5.25" low density	$40
5.25" high density	$35
3.5" high density	$45

Users interested in obtaining the master diskettes for overnight use or in diskette duplication should contact Mike Thommes at extension 2-5461 by Wednesday, October 31, 1990.

TELECOMMUNICATIONS NEWS

ARGONNE WEST CONNECTS TO ARGONNE EAST AND THE INTERNET

CTD has established a telecommunications link that handles the Transmission Control Protocol/ Internet Protocol (TCP/IP) protocols between Argonne Illinois and Idaho sites. This link allows users on hosts running the TCP/IP protocols (for example, on Sun workstations or VAX hosts running Multinet) connected to the Laboratory-wide Ethernet to access computers at Argonne West running these same protocols. The IP addresses for Idaho computers begin with the digits 141.221. The domain-style name for computers at Argonne West are of the form host.div.anlw.anl.gov (where "host" is a host computer and "div" is a division or program).

MFENET II UPGRADE COMPLETE

Argonne personnel have been working with the National Energy Research Supercomputing Center (NERSC) staff at Lawrence Livermore Laboratory (LLL) to complete the Magnetic Fusion Energy network (MFEnet) II upgrade. In October 1990, NERSC will shut down the existing MFEnet.

The goal of Energy Sciences network (ESnet) is to combine MFEnet, the High Energy Physics network (HEPnet), and other data communications networks funded by the DOE Office of Energy Research (OER) into a single network that would use protocols being developed by the International Standards Organization for Open Systems Interconnection (ISO/OSI). This past year, NERSC installed ESnet, a T1-based (1.544 megabits per second) communication network connecting major DOE sites. ESnet provides the communication backbone for MFEnet II. These T1 links are connected at each site through Cisco multi-protocol routers (running the Transmission Control Protocol/Internet Protocol [TCP/IP] and Digital Equipment Corporation [DECnet] communication protocols) that connect to the Laboratory-wide Ethernet backbone. NERSC software that runs on a VAX/VMS system allows users of these VAXes to access MFEnet II. At this time, VAX computers in CTD, Chemistry, Chemical Technology, and Physics are running the NERSC software. The NERSC VAX/VMS software allows interactive use, file transfer, and electronic mail with nodes on MFEnet II.

Argonne personnel have upgraded the MFEnet/ BITnet gateway software that runs on CTD's central VAX cluster for MFEnet II. Users of the upgraded MFEnet/BITnet gateway will not notice any change.

Access to MFEnet from ANLVMS is no longer available for MFEnet II. To access MFEnet directly, an MFEnet user can now login to the central VAX 8700 computer and use NETTY, NETOUT, and standard VAX mail commands. The commands for users to send mail to MFEnet (mfeuserid@host.MFENET) from Wylbur, CMS, and BITnet remain the same.

Users of MFEnet II should plan to use Argonne's sitewide MultiNet TCP/IP software as a back-up when MFEnet II is unavailable. MultiNet uses the commands **TELNET**, **FTP**, and **MAIL** to access ESnet. For ESnet interactive access, enter:

```
telnet cgw.nersc.gov
```

A terminal server is available to allow dial-up interactive use at 19.2 kilobits per second for internal Laboratory telephones and at 19.2 kilobits per second for offsite users. The dial-up number is extension 2-7920 for onsite calls and 972-7920 for offsite calls.

Users seeking information on the NERSC VAX/VMS software should call extension 2-7270.

NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 3,215 computers at over 1,140 sites. Since the last *Newsletter* article in August 1990, the following universities and organizations have joined BITnet:

Austin Peay State University
Earlham College--Richmond, Indiana
Erciyes University--Kayseri, Turkey
Ferris State University--Big Rapids, Michigan
Illinois State University
Information Decision Support Center--Cairo, Egypt
Institute for Information Industry--Taiwan
Knox College--Galesburg, Illinois
Nathan Kline Institute for Psychiatric Research--
  Orangeburg, New York
National Technical University--Buenos Aires
Portland Community College--Oregon
Research Center of the Academy of Science--Berlin
San Romanello del Monte Tabor Foundation--Milan
Southeastern Louisiana University
Technical University of Malaysia
Toyama Prefectual University
University of the Andes--Bogota, Colombia
University of Passau--Germany
Willamet University

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS, the VAX 8700, or MVS Wylbur):

```
HELP BITNET NODES
```

VAX/VMS NEWS

VMS 5.3 UPGRADE POSTPONED

To maintain the availability of the Argonne central VAX cluster (and the VAX 8700 in particular), CTD postponed the operating system upgrade originally scheduled for September 9, 1990. This upgrade is now scheduled for October 6, 1990.

The requirements for several long-running jobs and jobs needing to meet deadlines (coupled with virtually 100 percent utilization) forced this decision. The shutdown required for the upgrade would have had a heavy impact on the workload. We postponed the upgrade until after the end of the current fiscal year to avoid any further delays to the already increasing job backlog. We believe that the existing heavy workload justified deferring (at least temporarily) those benefits available with VMS 5.3.

We last restarted the VAX 8700 on August 2, 1990. If it does not require a shutdown until October 6, 1990 (for the upgrade), it will have provided 66 days of continuous service.

For more details about VMS 5.3, enter (at the system prompt):

```
HELP V53
```

SCHEDULE FOR INSTALLING ANSYS 4.4A+

ANSYS (the Finite Element Modeling System from Swanson Analysis Systems, Inc.) is due for an upgrade to Version 4.4A+. Before we can make a new version of ANSYS available, the existing shortage of disk space requires that we remove the oldest version. In preparation for this upgrade, CTD will make ANSYS 4.4 the default production version in place of ANSYS 4.3A. In December 1989, CTD installed ANSYS 4.4 on the Argonne central VAX 8700 (see "ANSYS Upgrade Available for Testing" in the December 1989 *Newsletter).*

The ANSYS schedule is:

October 15, 1990--ANSYS 4.4 becomes default
November 5, 1990--ANSYS 4.3A removed from VAX
November 13, 1990--ANSYS 4.4A+ available for testing

CTD encourages users of ANSYS 4.3A on the VAX 8700 to begin using ANSYS 4.4 immediately. To use ANSYS 4.4 before it becomes the default version, enter:

```
SETUP ANSYS44
```

Users can also use the ANSYS_SUBMIT command to submit ANSYS 4.4 batch jobs by following the prompts and editing the generated DCL to include the SETUP ANSYS44 command. If this change will affect your work, notify the User Services consultants at extension 2-5405.

BITS & BYTES

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new or recently revised documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing and Telecommunications Documents

A July 1990 addendum to the *Recommended Documentation for Computer Users* (ANL/TM 379, REVISION 2) updates the lists of documents in Chapters 3 and 4. The addendum lists (1) new and revised documents we have added at the Document Distribution Counter, (2) documents we no longer recommend, and (3) abstracts for added documents.

Argonne National Laboratory Computing and Telecommunications Division Rates (July 12, 1990) lists the processing rates of various computers as well as provides information about the computing services, batch services, and interactive services. Computing rates are determined by the shift in effect (prime, overnight, or weekend) when the job starts.

The *University of Chicago Agreements with Personal Computer Vendors* (September 6, 1990) contains the latest lists of personal desktop computer discounts available through the University of Chicago to Argonne employees for both personal and Laboratory purchases.

Cray Research Inc. Documents

CF77 Compiling System, Volume 1: Fortran Reference Manual (SR-3071) is a reference manual for the Fortran compiler that is part of the CF77 compiling system. The compiling system operates on all Cray Research computers and operating systems.

CF77 Compiling System, Volume 2: Compiler Message Manual (SR-3072) lists all messages issued by the compiling phase of the CF77 compiling system. Each message is followed by an expanded description of the problem and possible solutions.

CF77 Compiling System, Volume 4: Parallel Processing Guide (SR-3074) describes the CF77 compiling system. This manual defines and describes the Autotasking feature of the CF77 compiling system. Autotasking is the automatic distribution of loop iterations to multiple processors.

Other Vendor Documents

The *BMDP Statistical Software Manual* is a two volume set that describes the capabilities and usage of the Biomedical Computer Programs (BMDP) computer programs. This edition covers the changes and additions to the BMDP programs for the new 1990 release. Volume 1 introduces BMDP and describes the most commonly used programs. Volume 2 describes the more specialized programs. Readers can range from new to experienced users. This 1990 edition of the *BMDP Statistical Software Manual* (0-520-07112-3) supersedes the 1988 edition of the *BMDP Statistical Software Manual* (0-520-06473-9).

Getting Started With Fortran 77 describes the Fortran 77 computer language. Fortran 77 is the current Fortran standard used by all computer vendors. This manual is designed for a beginning student.

Boeing Mathematical Subprograms Library is a four volume set of documents consisting of *The Boeing Extended Subprogram Library, Computer Supplement for Release 12, Fundamental Subprograms in Release 12,* and *Advanced Subprograms in Release 12*. The set contains information on Release 12 of the BCSLIB Mathematical/Statistical Library provided by Boeing Computer Services. BCSLIB is an American National Standards Institute (ANSI) Fortran 77 subprogram library that provides comprehensive coverage of the basic areas of numerical mathematics and statistics, as well as useful utilities such as in-core sorting and line printer plotting. *The Boeing Extended Mathematical Subprogram Library* provides an overview of BCSLIB-EXT and complete usage information for all BCSLIB-EXT subprograms. *Computer Supplement for Release 12* provides information about all system specific features, such as computers and systems for which BCSLIB is available. *Fundamental Programs in Release 12* provides an overview of BCSLIB and complete usage information for all fundamental BCSLIB subprograms. *Advanced Subprograms in Release 12* provides complete usage information for the advanced programs. Readers should have a working knowledge of Fortran 77.

ERRATUM: COMPUTING CENTER USE IN DOLLARS BY COST CENTER

In the September 1990 *Newsletter*, we inadvertently omitted the figures for cost centers 143, 148, 150, 161, 201, 202, 210, 216, 222, and 232 under "Operations" in the "Computing Center Use in Dollars by Cost Center (June 29 through July 30, 1990)" statistics. We regret any confusion that this error may have caused.

The entire "Operations" section follows:

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
			OPERATIONS				
143	SUPP SERV DIV - ELEC DEPT	$114	$12	$0	$224	$165	$515
148	HUMAN RESOURCES-MEDICAL DEPT	$1,156	$0	$0	$111	$377	$1,644
150	SUPPORT SERV DIV - SPEC MATLS	$320	$0	$0	$104	$169	$593
161	TECH INFO SERVICES DEPT	$1,701	$8,994	$0	$1,959	$1,413	$14,067
201	OFFICE OF THE DIRECTOR	$217	$0	$0	$108	$111	$437
202	OFC OF CHIEF OPER OFCR	$44	$0	$0	$63	$102	$209
210	SUPP SERV DIV - CENT SHOPS	$252	$0	$0	$51	$187	$490
216	SUPPORT SERVICES DIVISION	$193	$0	$0	$52	$114	$360
222	PLANT FAC & SERV-LODGING FAC	$0	$0	$0	$0	$100	$100
232	SUPPORT SERV DIV - SECURITY	$381	$0	$0	$0	$170	$552
234	SUPP SERV DIV-HEALTH PHY	$240	$0	$0	$10	$159	$409
235	SUPP SERV DIV-ENV SAFE HEALTH	$924	$0	$0	$80	$444	$1,448
236	SUPPORT SERV DIV - FIRE DEPT	$19	$0	$0	$0	$102	$121
245	COMPUTING AND TELECOM DIV	$18,508	$0	$0	$3,622	$3,049	$25,179
247	COMP & TEL DIV - COM SERV	$1,635	$0	$0	$251	$1,352	$3,239
260	SUPP SERV DIV-GRAPHIC ARTS	$442	$161	$0	$165	$322	$1,090
275	OFFICE OF PUBLIC AFFAIRS	$527	$0	$0	$142	$165	$833
276	OFC PUB AF - MOTN PIC UNIT	$98	$0	$0	$1	$24	$124
296	TELECOM COST/RECOVERY	$0	$0	$0	$285	$0	$285
315	SUPP SERV DIV-MATLS & SERV	$2,291	$0	$0	$612	$495	$3,399
316	PLANT FAC & SERV-VEH MAINT	$0	$0	$0	$0	$160	$160
317	PLANT FAC & SERV-DRIV&RIG SER	$17	$0	$0	$1	$100	$117
319	SUPP SERV DIV-TRAVEL OFC	$5	$0	$0	$174	$100	$279
322	SUPP SERV DIV-PROCUREMENT	$60	$0	$0	$5	$104	$169
333	QA, ENVIR & SAFETY OFC	$145	$2	$0	$22	$198	$366
336	SUPP SERV DIV - INSPECTION	$32	$0	$0	$0	$5	$37
340	APS DIVISION MANAGEMENT	$39	$0	$0	$0	$40	$78
400	OFC OF CHIEF FIN OFFICER	$51,883	$0	$0	$2,114	$12,550	$66,547
401	ACCOUNTING	$0	$0	$0	$90	$100	$190
402	OFC CHIEF FIN OFCR-DATA ENTRY	$13	$0	$0	$125	$0	$138
403	BUDGET OFFICE	$35	$0	$0	$0	$220	$255
410	HUMAN RESOURCES DEPARTMENT	$14,136	$0	$0	$1,215	$1,751	$17,102
412	AFFIRM ACTION PROGRAM	$85	$0	$0	$35	$102	$222
501	PLANT FAC & SERV-BLDG MAINT	$46	$0	$0	$42	$383	$472
502	PLANT FAC & SERV-INSTALLATION	$14	$0	$0	$3	$100	$117
503	PLANT FAC & SERV-GROUNDS	$0	$0	$0	$0	$100	$100
504	PLANT FAC & SERV-CUSTODIAL	$0	$0	$0	$0	$100	$100
505	PLANT FAC & SERV-WASTE MGMT O	$61	$0	$0	$43	$100	$204
506	PLANT FAC & SERV-PLANT MGR OF	$876	$0	$0	$23	$384	$1,283
510	PLANT FAC & SERV-UTILITY SYST	$0	$0	$0	$0	$100	$100
512	PLANT FAC & SERV-FAC PLNG/ENG	$443	$0	$0	$27	$175	$645
530	SITE MGRS OFC-ANL WEST	$22	$0	$0	$0	$101	$123
531	PERSONNEL-ANL WEST	$143	$0	$0	$19	$100	$262
532	SPECIAL MATLS-ANL WEST	$954	$0	$0	$250	$285	$1,489
533	ACCOUNTING-ANL WEST	$0	$0	$0	$0	$100	$100
534	PURCHASING-ANL WEST	$0	$0	$0	$0	$118	$118
535	SECURITY - ANL WEST	$22	$0	$0	$0	$100	$122
536	SAFETY STAFF-ANL WEST	$201	$0	$0	$2	$102	$305
537	INFORMATION SERVICE-ANL WEST	$0	$0	$0	$0	$100	$100
538	MATLS HANDLING-ANL WEST	$135	$0	$0	$37	$100	$273
548	ANL WEST GENERAL EXPENSE	$297	$0	$0	$54	$0	$351
550	COMPUTER APPL & SERV - ANL-W	$149	$0	$0	$54	$112	$314
551	RAD MONITORING-ANL WEST	$0	$0	$0	$0	$100	$100
554	MACHINE SHOP-ANL WEST	$32	$0	$0	$2	$100	$134
556	SITE ENGRG-ANL WEST	$92	$0	$0	$13	$103	$207
557	PLANT SERVICES-AW-SERVICE REQ	$87	$2	$0	$12	$100	$201
558	PLANT SERVICES-AW-FUNCTION	$4	$0	$0	$0	$0	$4
559	FOOD SERVICES - ANL WEST	$0	$0	$0	$0	$100	$100
561	OFC OF QUALITY ASSURANCE - AW	$4	$0	$0	$0	$101	$105
563	TALENT RESOURCE POOL-ANL WEST	$0	$0	$0	$0	$100	$100
		--------	-------	--------	-------	-------	--------
SUBTOTAL		$99,095	$9,171	$0	$12,201	$27,815	$148,282

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD SEPTEMBER 4, 1990

Dotti Bingaman (Environmental Assessment and Information Sciences) opened the meeting at 3:03 p.m.

Review of FY1990 Floors and Proposed FY1991 Floors. Mike Boxberger (Computing and Telecommunications) summarized the current status of floors and stated what is currently under consideration for the FY1991 floors. In FY1990, floors of $6252K provided a CTD budget of $9205K. This was three to three-and-a-half times the anticipated charged usage without floors. For the months of July and August 1990, the usage has been above the floor level. If current trends continue, there would be about $70K that could be returned to the Associate Laboratory Directors (ALDs) of those areas that had floors assessed but have exceeded their levels.

Next year, the tentative budget is $9746K, of which $7011K is an assessment. The floors will be assessed by ALD area again. Various Laboratory management groups are discussing this plan. Acceptance is expected. The Computing Policy Committee (CPC) has approved the budget for action by the Management Council.

Performance Monitoring of Cray Jobs. Doug Engert (Computing and Telecommunications) reported that the Cray is currently running at full capacity. Therefore, CTD is helping programmers use the resource more efficiently. The Cray peak performance rating is 235 million floating-point operations per second (Mflops). A selected sampling of jobs shows that the job average is about 20 Mflops, so improvement may be possible for many jobs. Aids to improve job efficiency include (1) Release 4.0 of the cft77 compiler, (2) tuning classes offered by CTD, (3) help through Users Services, and (4) moving codes to other machines where they run more efficiently. (See "Measuring Cray Megaflops" in this *Newsletter.)*

Consequences of VAX/VMS Front-End Replacement. Tom Canfield (Computing and Telecommunications) reported on the removal of the VAX/VMS front-end station for the Cray and the commands and methods to replace it. (See "VAX/VMS Front-End Station for the Cray Shut Down on October 1, 1990" in this *Newsletter.)*

VMS 5.3 To Be Installed. Rich Raffenetti (Computing and Telecommunications) reported on the upgrade to VMS 5.3 on the VAX cluster. The latest update of some of the application software has corrected the software compatibility difficulties. For some important new features, see "VMS 5.3 To Be Installed" in the September 1990 *Newsletter*.

CA-Disspla Changes. Mike Thommes (Computing and Telecommunications) reported that on September 17, 1990, CA-Disspla Version 11.0 of Disspla will become the production version, and some changes will be necessary. (See "CA-Disspla 11.0 Goes Production in CMS and MVS, CA-Disspla 10.5 Becomes "Old," and CA-Disspla 10.0 Goes Away" in the September 1990 *Newsletter.)*

Recent Virtual Machine (VM) Failures Corrected. Doug Engert (Computing and Telecommunications) reported on the recent failure of the VM system. A user on an ASCII terminal can cause a timing problem during logoff. The VM operating system zeros out most of the memory (including itself) and then gets stuck in a loop. By using a hardware trap and then a program trap, CTD circumvented the difficulty, although the actual cause was not found.

CPC Report. Cy Adams (Engineering Physics) reported on the CPC meeting. It was primarily concerned with the CTD budget. CPC is still looking for a better method of handling charges for network usage. Suggestions are welcome. CTD is putting together the *CTD Strategic Long-Range Plan* (ANL/TM 482), which will be used in the budgeting process next year.

There was a discussion of the impact of floors and the priority bidding system used on the Cray. Because of the need to use their floor allocations before the end of the fiscal year, some users are using the Cray for long periods at the highest priority. This situation blocks other users from getting their work done. The current system allows users to use their yearly floor allocation in the final months of the year, which creates a backlogged machine. Several suggestions were made: fair-share scheduling, a different mix of job class attributes, and allowing only one active job in the system per user. The consensus is that all users should make sure their ALDs allocate and notify cost centers of their assessments early in the fiscal year. Then the cost centers can use the resources over the whole year, not just in the last few months.

The CUG meeting adjourned at 4:50 p.m.

Ken Miles, CUG Secretary

MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD AUGUST 9, 1990

In the absence of Mary Warren (Energy, Environmental and Biological Research), Bill Jepsen (Graphic Arts) opened the meeting at 12:08 p.m.

Lee Wagar (Graphic Arts) and Mary Jo Thompson (Graphic Arts) gave some brief comments on current Graphic Arts events. Chief among these comments was that the new press is in place and running and color printing and printing on gloss paper have worked well.

Rick Fenner (Advanced Photon Source) gave a brief illustrated talk about a series of display panels that APS has produced and used. The individual panels are replaceable, making the task of updating the information on the panels easy. The displays were produced on Apple Macintosh computers with Macintosh color, which turned out better than color overlays.

Following Rick's presentation, the group went to see a demonstration of the new Barney Scan equipment by Vicky Croke. This equipment scans 35mm slides or negatives into page layout software. You can alter the electronic versions of the pictures in several ways (including size of the picture, contrast, and brightness). Graphic Arts charges a flat rate for scanning of slides or negatives but an hourly rate for retouching or modifying the electronic images, because it is custom work.

Mary Ann Forys (Graphic Arts) demonstrated the new vinyl sign-making equipment, which allows the production of anything from simple poster headings to custom signs. Graphic Arts charges $50 each for standard headings (for example, titles) and an hourly rate for custom signs.

The next meeting will be held on Thursday, October 11, 1990, at noon in Building 201, Room 276--not Room 274.

David Nadziejka, Acting Graphic Arts Users Group Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD SEPTEMBER 19, 1990

Bob Kampwirth (Materials Science) opened the meeting at 11:08 a.m. The meeting announcement was sent out by using QuickMail or Email, when possible, and with paper for those who do not have electronic mail capabilities. If you have an electronic mail address and are not receiving an electronic meeting announcement, contact Lee Wagar at extension 2-5603. The use of electronic mail saves paper and Lee's time and allows one to find out about last minute changes. This feature was very important for this meeting, because the location was changed to Building 203, Room E-142, at the last minute.

Cary Tengler (Apple Computer) discussed Apple's commitment to the research and development community in a talk entitled "Macintosh in the Scientific Computing Environment." He noted that the Apple Macintosh really took off in scientific computing with the arrival of the Apple Macintosh II. Cary talked about making one's computing needs easily accessible through the Apple Macintosh. These needs include data generation, modeling and simulation, visualization, collaboration, information access, and publishing. AU/X 2.0, the new Apple version of Unix, is seen as a good start in this direction. Cary also talked about the new Macintosh Research User Association that he is starting. It will be a national organization where individual users can go to get their questions answered and to have access to shareware and public domain software. Finally, Cary talked about Apple getting involved in demonstrations at national meetings of the various technical societies. Cary used Microsoft PowerPoint for his presentation.

Tony Cane (Spyglass) demonstrated four of their new products for analysis of 2-dimensional and 3-dimensional data: View, Dicer, Transform, and Format. These programs allow one to manipulate and visualize arrays of floating-point numbers. The idea is to understand what would otherwise be incomprehensible masses of numbers. When using Dicer, one can slice the multicolored arrays, remove volumes, and rotate the results. One can output the displays to any PostScript color printer. These programs represent an alternative to expensive graphics workstations. All four programs are available through the University of Chicago at a discount. For this meeting, the presentations were done by using an Apple Macintosh IIx with a Barco large screen color projector. It had a remote convergence device to set it up. The result was a picture of very high quality, by far the finest quality picture that we have seen at a Macintosh Users Group meeting.

The Apple Macintosh Users Group meeting in October 1990 will have a representative from Apple to give an overview of programming on the Apple Macintosh. As a topic for a future meeting, the new graphics program, DeltaGraph, is being considered.

The Apple Macintosh Users Group normally meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

The meeting adjourned at 12:25 p.m.

Ralph Leonard, Macintosh Users Group Secretary

[illegible]

WORKLOAD STATISTICS (JULY 31 THROUGH AUGUST 30, 1990)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	*END OF MONTH*	*ACTIVE DURING MONTH*
CMS	1,258	1,261	464
Wylbur	1,712	1,711	367
MVS TSO	57	57	11
CICS	1,712	1,711	155
MVS Batch	2,252	2,268	739
VAX/VMS	657	634	338
Cray	384	352	137
All Systems	2,252	2,268	1,041

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				*SESSION*	*CPU*
	PRIME	*NIGHT*	*WEEKEND*	*TOTAL*	*TIME (HRS)*	*TIME (HRS)*
INTERACTIVE						
CMS	11,242	2,746	1,543	15,531	35,954.3	76.84
Wylbur	10,477	400	293	11,170	8,486.7	6.61
MVS TSO	259	2	0	261	308.6	0.52
CICS	n.a.	n.a.	n.a.	n.a.	n.a.	4.79
VAX/VMS	15,923	4,504	2,194	22,621	21,532.6	181.97
Cray	2,437	180	188	2,805	1,735.7	31.94
IBM BATCH						
Class U	10,477	2,043	1,121	13,641	n.a.	22.83
Class W	18,573	2,877	932	22,382	n.a.	135.45
Class X	4	640	12	656	n.a.	76.58
Class Y	0	0	138	138	n.a.	34.41
Nonmain	16,782	2,998	963	20,743	n.a.	0.00
Total	45,836	8,558	3,166	57,560	n.a.	269.27
CRAY BATCH						
u	2,437	180	188	2,805	n.a.	37.96
w	2,535	557	251	3,343	n.a.	327.35
x	11	129	154	294	n.a.	82.67
y	2,284	883	767	3,934	n.a.	136.54
Total	7,267	1,749	1,360	10,376	n.a.	584.52
VMS BATCH						
W_BATCH	1,618	1,002	270	2,890	n.a.	102.91
X_BATCH	14	81	20	115	n.a.	102.67
Y_BATCH	6	0	18	24	n.a.	18.97
Total	1,638	1,083	308	3,029	n.a.	224.55

INPUT/OUTPUT

Lines Printed	
Local	67,698,698
Remote	51,388,991
Fiche	41,386,328
Cards Punched-Local Only	327,230
Tape Mounts	6,983
Microfiche Developed	4,981
Microfiche Frames Developed	921,207

GRAPHICS

	# OF JOBS	*# OF FRAMES*
CalComp Jobs	97	n.a.
Matrix 35mm Color	54	158
Matrix-8 x 10	0	0
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	0	0
35mm Black/White/Sprocketed	1	1,012
35mm Color	1	7
16mm Black/White/Sprocketed	3	1,031
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	24,866
New Tapes Saved	287
Tapes Released	620
Datasets Exported to Tape	1,966
Datasets Imported from Tape	485

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (JULY 31 THROUGH AUGUST 30, 1990)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
			CMS				
All Shifts							
Interruptions	14.00	1.00	7.00			6.00	
Hrs Unavailable	9.16	0.66	4.63			3.86	
MTF/Unscheduled	122.47					122.47	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	6.00					6.00	
Hrs Unavailable	3.86					3.86	
MTF/Unscheduled	45.35					45.35	
			WYLBUR				
All Shifts							
Interruptions	6.00	1.00	5.00				
Hrs Unavailable	4.11	0.85	3.26				
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions							
Hrs Unavailable							
MTF/Unscheduled							
			MVS TSO				
All Shifts							
Interruptions	6.00	1.00	5.00				
Hrs Unavailable	4.11	0.85	3.26				
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions							
Hrs Unavailable							
MTF/Unscheduled							
			JES3				
All Shifts							
Interruptions	5.00		4.00			1.00	
Hrs Unavailable	1.98		1.75			0.23	
MTF/Unscheduled	742.01					742.01	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions							
Hrs Unavailable							
MTF/Unscheduled							
			CICS				
All Shifts							
Interruptions							
Hrs Unavailable							
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions							
Hrs Unavailable							
MTF/Unscheduled							
			VAX/VMS (VAX 8700)				
All Shifts							
Interruptions	1.00	1.00					
Hrs Unavailable	2.50	2.50					
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions							
Hrs Unavailable							
MTF/Unscheduled							
			CRAY				
All Shifts							
Interruptions	5.00	4.00				1.00	
Hrs Unavailable	13.10	12.76				0.33	
MTF/Unscheduled	730.90					730.90	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00					1.00	
Hrs Unavailable	0.33					0.33	
MTF/Unscheduled	275.66					275.66	

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (JULY 31 THROUGH AUGUST 30, 1990)

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
	ADVANCED PHOTON SOURCE						
130	ADVANCED PHOTON SOURCE DIV	$188	$336	$0	$519	$502	$1,546
272	ADVANCED PHOTON SOURCE	$131	$0	$0	$13	$50	$194
341	APS ACCELERATOR PHYSICS	$341	$5,781	$387	$661	$390	$7,560
343	APS LINAC	$0	$515	$0	$22	$0	$537
344	APS RF	$5	$0	$0	$0	$0	$5
345	APS VACUUM	$10	$1,912	$0	$19	$226	$2,167
347	APS CONTROLS	$65	$2	$0	$1	$5	$72
348	APS MAGNETS	$89	$1,429	$0	$175	$1	$1,694
349	APS POWER SUPPLIES	$44	$0	$0	$1	$0	$46
350	APS DIVISION MANAGEMENT	$15	$0	$0	$1	$15	$31
351	APS INSERTION DEVICES	$520	$1,020	$0	$648	$12	$2,201
352	APS BEAM LINE FRONT ENDS	$8	$0	$0	$0	$0	$9
353	APS BEAM LINE INSTRUMENTATION	$21	$0	$0	$0	$0	$21
360	APS CONVENTIONAL FACILITIES	$8	$1	$0	$0	$0	$9
361	APS PROJECT DIRECTION	$398	$349	$0	$213	$55	$1,015
362	APS MANAGEMENT GENERAL	$100	$0	$0	$0	$100	$201
		------	-------	----	------	------	-------
SUBTOTAL		$1,944	$11,346	$387	$2,273	$1,356	$17,307
	ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	BIO & MED RES DIV	$1,425	$2,254	$254	$1,034	$1,970	$6,937
125	TECHNOLOGY TRANSFER CENTER	$104	$0	$0	$6	$143	$254
149	ENVIROMMENTAL RESEARCH DIV	$1,674	$230	$1,331	$922	$1,026	$5,183
155	ENERGY SYSTEMS DIVISION	$14,093	$3,187	$24,119	$2,050	$2,097	$45,546
165	ENV ASSESS & INFO SCI DIV	$6,856	$12,689	$126,070	$2,380	$3,845	$151,840
174	ENER/ENV/BIO PROG DIR	$15	$0	$0	$0	$100	$115
246	ES-NAT'L ENERGY SOFTWARE CTR	$117	$0	$0	$782	$671	$1,569
274	ENER/ENV/BIO RES PROG ADM	$174	$0	$0	$7	$170	$351
		-------	-------	--------	------	-------	--------
SUBTOTAL		$24,458	$18,360	$151,774	$7,182	$10,021	$211,796
	ENGINEERING RESEARCH						
102	EBR-II PROJECT-ANL WEST	$2,181	$16	$25	$1,930	$107	$4,259
107	CHEMICAL TECHNOLOGY DIVISION	$636	$622	$0	$920	$522	$2,701
112	REACTOR ANAL & SAFETY	$15,857	$539	$12,101	$5,853	$2,876	$37,226
114	MATLS & COMP TECH DIV	$5,827	$5,390	$301	$3,119	$2,511	$17,148
115	ENGINEERING PHYSICS DIVISION	$51,567	$16,342	$85,722	$13,981	$6,101	$173,712
117	APPLIED PHYSICS-ANL WEST	$2,947	$5	$14,104	$401	$726	$18,184
118	REACTOR EXP & EXAM DIV	$8,925	$489	$4	$620	$248	$10,287
119	ANALYTICAL LABORATORY ANL-WES	$0	$0	$0	$0	$100	$100
171	ENGRG RES PROG DIR	$4	$0	$0	$0	$105	$109
197	SPECIAL PROJECTS OFFICE	$653	$0	$0	$13	$203	$869
211	ENGINEERING PHYSICS DIVISION	$126	$16	$0	$36	$2,894	$3,072
269	CHEM TECH DIV-ANALYTICAL CHEM	$96	$0	$0	$2	$111	$210
271	ENGRG RES PROG ADMIN	$306	$0	$0	$17	$259	$582
		-------	-------	--------	-------	-------	--------
SUBTOTAL		$89,124	$23,421	$112,259	$26,892	$16,763	$268,458
	PHYSICAL RESEARCH						
105	MATERIALS SCIENCE DIVISION	$6,407	$8,956	$3,444	$1,989	$732	$21,527
109	PHYSICS DIV	$3,785	$1,014	$1,788	$2,055	$860	$9,502
120	CHEMISTRY DIV	$1,788	$7,569	$40,263	$826	$819	$51,264
136	INT PULSE NEUT SOURCE PROG	$176	$770	$3,368	$283	$355	$4,952
137	HIGH ENERGY PHYSICS DIV	$7,592	$1,732	$2,024	$1,674	$577	$13,599
139	DIV OF EDUCATIONAL PROGRAMS	$375	$0	$0	$54	$147	$577
145	MATHEMATICS & COMPUTER SCI DI	$259	$27	$1,202	$3,335	$4,357	$9,180
146	CTD DIV - SCI APPL & RES	$28	$1	$0	$75	$20	$124
273	PHYSICAL RESEARCH PROGRAM ADM	$72	$0	$0	$17	$141	$229
		-------	-------	-------	-------	------	--------
SUBTOTAL		$20,482	$20,068	$52,089	$10,307	$8,008	$110,954
	EXTERNAL						
751	FERMI NATIONAL LABORATORY	$856	$0	$0	$460	$405	$1,720
752	NAVY	$16,054	$0	$0	$1,474	$6,922	$24,451
753	MORGANTOWN ENERGY TECH CENTER	$17	$0	$0	$650	$0	$667
754	DEPARTMENT OF ENERGY AT ANL	$0	$0	$0	$2	$0	$2
756	LOS ALMOS	$25	$0	$0	$0	$0	$25
760	ABBOTT LABORATORIES	$13	$0	$161	$0	$0	$174
763	GENERAL ELECTRIC COMPANY	$0	$1	$0	$0	$0	$1
765	WESTINGHOUSE HANFORD COMPANY	$0	$2	$4	$0	$0	$6
766	BECHTEL NATIONAL, INC.	$0	$122	$572	$35	$1	$729
771	PURDUE UNIVERSITY	$4	$0	$0	$0	$0	$4
775	SMITHSONIAN	$0	$0	$0	$0	$3	$3
777	UNIVERSITY OF CHICAGO AT ANL	$29	$0	$0	$126	$0	$155
778	ARGONNE CREDIT UNION	$8	$0	$0	$0	$0	$8
779	UNIVERSITY OF ILLINOIS AT CHI	$8	$0	$0	$0	$0	$8
780	NEW BRUNSWICK LABORATORY	$18	$0	$0	$1	$0	$19
781	STATE OF ILL. DEPT. MENTAL HE	$0	$0	$0	$0	$7	$7
782	PACKER ENGINEERING	$4	$28	$1	$0	$-100	$-67
783	WEST VALLEY NUCLEAR SERVICES	$12	$0	$0	$0	$0	$12
784		$8	$666	$2,411	$657	$14	$3,758
		-------	----	------	------	------	-------
SUBTOTAL		$17,058	$818	$3,149	$3,406	$7,252	$31,683

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
			OPERATIONS				
143	SUPP SERV DIV - ELEC DEPT	$140	$12	$0	$239	$186	$577
148	HUMAN RESOURCES-MEDICAL DEPT	$992	$0	$0	$91	$382	$1,465
150	SUPPORT SERV DIV - SPEC MATLS	$218	$0	$0	$45	$122	$385
161	TECH INFO SERVICES DEPT	$1,205	$11,123	$0	$2,750	$1,850	$16,928
201	OFFICE OF THE DIRECTOR	$278	$0	$0	$198	$204	$680
202	OFC OF CHIEF OPER OFCR	$35	$0	$0	$63	$102	$200
210	SUPP SERV DIV - CENT SHOPS	$257	$0	$0	$51	$200	$509
216	SUPPORT SERVICES DIVISION	$126	$0	$0	$44	$114	$284
222	PLANT FAC & SERV-LODGING FAC	$0	$0	$0	$0	$113	$113
232	SUPPORT SERV DIV - SECURITY	$342	$0	$0	$0	$378	$720
234	SUPP SERV DIV-HEALTH PHY	$239	$0	$0	$21	$205	$465
235	SUPP SERV DIV-ENV SAFE HEALTH	$965	$0	$0	$73	$345	$1,383
236	SUPPORT SERV DIV - FIRE DEPT	$7	$0	$0	$0	$102	$110
245	COMPUTING AND TELECOM DIV	$19,015	$0	$0	$3,691	$2,639	$25,345
247	COMP & TEL DIV - COM SERV	$2,072	$0	$0	$387	$1,516	$3,976
260	SUPP SERV DIV-GRAPHIC ARTS	$405	$160	$0	$109	$237	$910
275	OFFICE OF PUBLIC AFFAIRS	$537	$0	$0	$155	$170	$863
276	OFC PUB AF - MOTN PIC UNIT	$79	$0	$0	$0	$25	$104
296	TELECOM COST/RECOVERY	$0	$0	$0	$285	$0	$285
315	SUPP SERV DIV-MATLS & SERV	$3,356	$0	$0	$740	$620	$4,716
316	PLANT FAC & SERV-VEH MAINT	$0	$0	$0	$0	$159	$159
317	PLANT FAC & SERV-DRIV&RIG SER	$15	$0	$0	$0	$100	$115
319	SUPP SERV DIV-TRAVEL OFC	$5	$0	$0	$1	$100	$106
322	SUPP SERV DIV-PROCUREMENT	$54	$0	$0	$4	$105	$163
333	QA, ENVIR & SAFETY OFC	$78	$0	$0	$19	$169	$266
336	SUPP SERV DIV - INSPECTION	$17	$0	$0	$0	$11	$28
340	APS DIVISION MANAGEMENT	$24	$0	$0	$0	$29	$53
400	OFC OF CHIEF FIN OFFICER	$51,554	$0	$0	$2,109	$14,094	$67,757
401	ACCOUNTING	$0	$0	$0	$107	$100	$207
402	OFC CHIEF FIN OFCR-DATA ENTRY	$13	$0	$0	$125	$0	$138
403	BUDGET OFFICE	$43	$0	$0	$0	$231	$275
410	HUMAN RESOURCES DEPARTMENT	$10,291	$0	$0	$1,111	$1,325	$12,727
412	AFFIRM ACTION PROGRAM	$104	$0	$0	$40	$102	$246
501	PLANT FAC & SERV-BLDG MAINT	$55	$0	$0	$44	$783	$882
502	PLANT FAC & SERV-INSTALLATION	$18	$0	$0	$4	$100	$122
503	PLANT FAC & SERV-GROUNDS	$0	$0	$0	$0	$100	$100
504	PLANT FAC & SERV-CUSTODIAL	$85	$0	$0	$15	$100	$200
505	PLANT FAC & SERV-WASTE MGMT O	$60	$0	$0	$46	$102	$208
506	PLANT FAC & SERV-PLANT MGR OF	$667	$0	$0	$4	$481	$1,152
510	PLANT FAC & SERV-UTILITY SYST	$0	$0	$0	$0	$110	$110
512	PLANT FAC & SERV-FAC PLNG/ENG	$467	$0	$0	$18	$130	$615
530	SITE MGRS OFC-ANL WEST	$23	$0	$0	$1	$101	$124
531	PERSONNEL-ANL WEST	$82	$0	$0	$82	$100	$264
532	SPECIAL MATLS-ANL WEST	$932	$0	$0	$167	$288	$1,387
533	ACCOUNTING-ANL WEST	$0	$0	$0	$0	$100	$100
534	PURCHASING-ANL WEST	$0	$0	$0	$0	$100	$100
535	SECURITY - ANL WEST	$15	$0	$0	$0	$100	$115
536	SAFETY STAFF-ANL WEST	$190	$0	$0	$0	$102	$292
537	INFORMATION SERVICE-ANL WEST	$0	$0	$0	$0	$100	$100
538	MATLS HANDLING-ANL WEST	$128	$0	$0	$32	$100	$260
548	ANL WEST GENERAL EXPENSE	$499	$0	$0	$52	$0	$550
550	COMPUTER APPL & SERV - ANL-W	$149	$11	$0	$31	$100	$292
551	RAD MONITORING-ANL WEST	$0	$0	$0	$0	$100	$100
554	MACHINE SHOP-ANL WEST	$26	$0	$0	$2	$100	$128
556	SITE ENGRG-ANL WEST	$79	$0	$0	$16	$100	$195
557	PLANT SERVICES-AW-SERVICE REQ	$97	$3	$0	$11	$100	$211
558	PLANT SERVICES-AW-FUNCTION	$4	$0	$0	$0	$0	$4
559	FOOD SERVICES - ANL WEST	$0	$0	$0	$0	$100	$100
561	OFC OF QUALITY ASSURANCE - AW	$4	$0	$0	$0	$101	$105
563	TALENT RESOURCE POOL-ANL WEST	$0	$0	$0	$0	$100	$100
SUBTOTAL		$96,046	$11,311	$0	$12,982	$29,832	$150,172
TOTAL		$249,113	$85,324	$319,657	$63,043	$73,231	$790,369

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	**Onsite (Illinois)**	**Onsite (Idaho)**	**Offsite (Area Code 708)**
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter	2-3270	n.a.	972-3270
1200 to 19.2K Bits Per Second (Onsite)			
1200 to 2400 Bits Per Second (Offsite)			
X.25 Terminal Multiplexor			
300 to 19.2K Bits Per Second(Onsite)	2-2525	n.a.	972-2525
1200 to 2400 Bits Per Second (Offsite)			
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	972-8700
1200 to 2400 Bits Per Second (Offsite)			
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	972-5588
1200 to 2400 Bits Per Second (Offsite)			
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920

Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

* When using a 300 bits per second modem, you must use a capital "P" to logon.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	**VM/SP**	**VMS**	**MFEnet Gateway**
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.

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Argonne National Laboratory
Computing and Telecommunications Division
November 1990

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering four classes. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

USING SAS

Goals: To develop familiarity with the Statistical Analysis System (SAS), to become familiar with its flexible input mechanisms (which are capable of reading virtually any format of data and easily permit selection of data), to learn to use some basic reporting features, and to become aware of the capabilities made possible by a variety of SAS procedures.

Prerequisite: Some knowledge of CMS, MVS, VAX/VMS, or an IBM PC

Length of Class: Two 3-hour sessions

Dates and Time: November 1 and 6, 1990 (Thursday and Tuesday), 9:00 a.m. to noon

Location: Building 221, Room A-261

Suggested Reading: *SAS Introductory Guide*

Instructor: Mike Thommes

USING NCSA IMAGETOOL FOR DESKTOP SCIENTIFIC VISUALIZATION

Goals: To see what visualization capabilities the NCSA Imagetool program can provide. To learn how to create Fortran or C programs to convert your data into the form Imagetool accepts.

Prerequisite: Working knowledge of C or Fortran

Length of Class: One 3-hour session

Date and Time: November 14, 1990 (Wednesday), 9:00 a.m. to noon

Location: Building 221, Room A-261

Suggested Reading: *NCSA Image for the Color Macintosh Version 2.0*

Instructor: Dave Lifka

CRAY X-MP ARCHITECTURE AND VECTORIZATION TECHNIQUES

Goals:	To learn to optimize Fortran programs on the Cray X-MP/14 high-performance computer. Topics include Cray X-MP architecture, vectorization, and optimization.
Length of Class:	Two 3-hour sessions
Dates and Time:	November 14 and 16, 1990 (Wednesday and Friday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Instructors:	Tom Canfield Pete Bertoncini

INTRODUCING THE NEW SAS VERSION 6.06

Goals:	To become familiar with SAS Version 6.06 enhancements.
Prerequisite:	Some knowledge of SAS
Length of Class:	One 2-hour session
Length of Lab:	One 1-hour session
Date and Time:	November 15, 1990 (Thursday), 9:00 a.m. to noon
Location:	Building 221, Room A-261
Suggested Reading:	*SAS Technical Report P-204/SAS Software: Changes and Enhancements, Release 6.06* (1-55544-409-1)
Instructor:	Mike Thommes

COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH	Introduction and Advanced Concepts of Xedit

DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	**Course Title**
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

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Argonne National Laboratory Computing and Telecommunications Division

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URBANA-CHAMPAIGN

VOLUME 21 NUMBER 11 NOVEMBER 1990

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COMPUTING AND TELECOMMUNICATIONS DIVISION
Argonne National Laboratory
Building 221
Argonne, Illinois 60439-4822
FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	**Phone**	**Electronic Mail Address**
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Computer Network	Bob McMahon (Acting)	B239	2-7270	B17385 AT ANLVM
Data Communications	Linda Winkler (Acting)	B251	2-7236	B32357 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	B159	2-7329	B32848 AT ANLVM
Planning, Finance, and Administration	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.3, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

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COMPUTING COMMENTS

FY1991 COMPUTING RATE STRUCTURE RATE REVISED

The Computing Policy Committee has reviewed and endorsed the FY1991 rate structure for central computing. The revised rate sheet has been approved by the Chief Financial Officer and is attached to this *Newsletter*. We have placed vertical revision bars in the left margin of the rate sheet to provide users with an indication of any differences from the FY1990 rates.

The most significant rate structure changes are:

- Increased Cray CPU and memory rates by 30 percent and 40 percent, respectively.
- Increased IBM CPU rate by 33 percent and reduced IBM memory rate by 67 percent.
- Reduced all disk storage rates (IBM, VAX, and Cray) to $0.15 per megabyte day.
- Reduced VAX CPU rate by 40 percent.
- Increased most network rates an average of 15 percent.
- Increased printing rates to encourage minimization of waste.
- Increased reel tape storage rates to encourage cartridge use.
- Established new Unix-based services rates.
- Established new rates for planned scientific visualization services.

The Computing and Telecommunications Division (CTD) has provided the overall cost recovery plan and the models of recovery by service type to the Computing Policy Committee and the Chief Financial Officer to document the FY1991 Central Computing Full Cost Rate Structure.

REDUCE TAPE DATA STORAGE COSTS BY USING IBM 3480-TYPE CARTRIDGES

Using IBM 3480-type cartridges on the IBM or Cray systems instead of 10-inch tape reels will reduce your tape data storage costs and will improve service. This technology offers greater reliability, has more error correction capability, and transfers data faster than the 10-inch reel technology. Because use of the cartridges will ultimately result in about 30 percent lower operating costs, CTD has priced storage of 10-inch reels higher to encourage conversion. The initial installation of eight cartridge drives (four with automatic cartridge stacker/loaders that can handle up to nine pre-loaded cartridges each) and one control unit has already allowed CTD to reduce operator effort and to decommission four 10-inch reel drives. Ten tape reel drives remain in service.

In January 1991, CTD will decommission four additional 10-inch tape reel drives, because the usage of the 10-inch reels is decreasing while the usage of the cartridge drives is increasing. Ultimately, only four tape reel drives will remain in service: two will be IBM 3420 Model 8 dual density (1600 and 6250 bpi) drives, one will be an IBM 3420 Model 7 dual density (800 and 1600 bpi) drive, and one will be a 7-track tape drive. These drives will remain for several years to provide expected services (for example, the ability to copy data from 10-inch reels to the IBM 3480-type cartridges).

MVS AND CMS FORTRAN 66 USERS ENCOURAGED TO CONVERT TO VS FORTRAN

CTD urges the remaining users of the old Fortran 66 compilers in CMS and MVS to begin converting programs to use the VS Fortran compiler. VS Fortran compiles Fortran 66 programs by using the LANGLVL(66) option and should eliminate the need for the obsolete G1 and H Extended compilers.

VS Fortran Version 2.4 is now available for testing (see "VS Fortran Version 2.4.0 of the IBM VS Fortran Compiler and Library Available for Testing in MVS Batch" in this *Newsletter)*. Version 2.4 produces executable modules that are as fast as those modules produced by the Fortran H Extended (Enhanced) Compiler. With either of these compilers, the IBM 3084 operates at 2.5 Linpack megaflops per processor.

VS Fortran is also designed to produce object modules capable of exploiting the large regions provided by the newer MVS/XA and the VM/XA operating systems provided by IBM. (CTD is planning to upgrade to the VM/XA system later this fiscal year.) Current VS Fortran modules are already marked as being able to use an XA region. Some libraries (such as the Disspla 11.0 graphics library installed at ANL) will work only with the VS Fortran compiler.

In the past few years, usage of the Fortran H Extended Compilers has decreased, because users converted to VS Fortran or moved their production Fortran codes to the Cray X-MP/14. Consequently, CTD hopes eventually to discontinue the multiple Fortran H Extended licenses and to eliminate those costs from the budget for central computing.

MVS users who now use FGI, FTX, or FXE procedures to compile Fortran 66-style programs should instead use JCL of the following form to compile their programs:

```
//stepname EXEC FORTVCxxx,LVL=66
```

where xxx=CLG, CEG, or CEP. CMS users who now use FORTGI, FORTHX, or FORTHXE commands to compile Fortran 66-style programs should enter the following command:

```
FORTVS fn (LANGLVL(66)
```

where "fn" is the file name of the Fortran program. For details on required libraries (in CMS), enter:

```
HELP FORTVS
```

Users who require assistance should contact the User Services consultants at extension 2-5405.

HIGH-PERFORMANCE COMPUTING SEMINAR

The series of high-performance computing seminars is continuing. An upcoming talk for December 1990 is:

Tim Davis, CERFACS, Toulouse, France
To be announced
Thursday, December 13, 1990

Check the *Argonne Bulletin* and the special announcements for the times and locations of the seminars. To have your name added to the distribution list for abstracts, contact Claudette DaCosse at extension 2-5415.

MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASS

The Mathematics and Computer Science Division is offering a three-day class (9:00 a.m. to 4:30 p.m., on Wednesday, Thursday, and Friday, December 5-7, 1990) on how to write programs for the parallel computer systems in the Argonne Advanced Computing Research Facility (ACRF).

The class will cover the following topics: (1) parallelizing compilers, (2) using the VecPar interactive parallelization tool, (3) using the Argonne Monitor package, (4) using the STRAND parallel programming language, (5) programming the Butterfly TC2000, (6) programming the Distributed Array Processor (DAP), and (7) programming the Connection Machine-2. The class will include hands-on experience in writing and running programs on each machine. Participants will become familiar with the ACRF environment. Some knowledge of Unix and Fortran is necessary. To become familiar with Unix, refer to *A Practical Guide to UNIX System V* (0-8053-8915-6), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address huml@mcs.anl.gov. There is a $25.00 charge per person for universities, federal laboratories, and other government organizations and a $100 charge for commercial organizations.

COMPUTING CLASSES SCHEDULED FOR NOVEMBER AND DECEMBER 1990

During November and December 1990, CTD will offer five classes. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Using SAS (two three-hour sessions) includes examples of Statistical Analysis System (SAS) programs in CMS, although you can use the same SAS code in the MVS batch, VAX/VMS, and IBM PC systems. SAS is a powerful, easy-to-use computer system for data analysis. In addition to statistical analysis, SAS provides tools for information storage and retrieval, data modification and programming, report writing, and file handling. Some knowledge of CMS, MVS, VAX/VMS, or an IBM PC is necessary.

Using NCSA Imagetool for Desktop Scientific Visualization (one 3-hour session) demonstrates NCSA Imagetool for viewing data as raster images. Attendees should have a working knowledge of Fortran or C on the computer of their choice. Topics include C and Fortran programs that create data files for NCSA Imagetool, data scaling and interpolation, different machines on which NCSA Imagetool runs (Sun, IBM Personal Computer, Apple Macintosh, or any workstation that runs the X Window System), image file transfer to your workstation, and current output capabilities CTD offers.

Cray X-MP Architecture and Vectorization Techniques (two 3-hour sessions) is for users who want to optimize their Fortran program to take full advantage of the Cray X-MP/14 high-performance computer. Topics include Cray architecture, vectorization, optimization, performance analysis tools, and code examples.

Introducing the New SAS Version 6.06 (one 3-hour session) includes a two-hour class and a one-hour lab. This class introduces you to the most recent release of SAS for minicomputers and mainframes, Version 6.06. Currently, Version 6.06 is available on the VAX 8700 as a test version and should become available on the IBM mainframe under MVS and CMS within the next few months. With this version, SAS Institute has rewritten the SAS software in the C programming language and has greatly enhanced the user interface with more window panels than before. In addition, the PMENU (pull-down menus) facility allows you to move around within the SAS environment much like a user in the Apple Macintosh or Microsoft Windows environment. This class is a "must-attend" to get the full benefit of this new SAS version.

Introduction to Unix (two 3-hour sessions) is an overview of the Unix operating system. Scientific computing users will need some familiarity with Unix to use the Cray X-MP, new scientific workstations, and future advanced architecture computers. Attendees will become familiar with the file system, changing file permissions, the vi editor, using mail, configuring the user environment, job and process control, using the Transmission Control Protocol/Internet Protocol (TCP/IP), good computer protection practices, and many useful commands. CTD will establish temporary accounts on the CTD Sun Unix server for attendees for the duration of the class. The class will enable the use of Unix from ASCII terminals to reinforce the lecture content.

CRAY NEWS

CTD PLANS TO MAKE CF77 VERSION 4.0 PRODUCTION

On Sunday, November 11, 1990, CTD plans to upgrade the current production version of the CF77 compiling system to Version 4.0. This upgrade includes the CFT77 Version 4.0 Cray Fortran Compiler, the FPP Version 4.0 Dependency Analyzer, the FMP Version 4.0 Fortran Multitasking Translator, and the SEGLDR Version 5.2 Segment Loader. The new compiling system is easier to use and optimizes your Cray Fortran programs to run more efficiently.

The CF77 Version 4.0 command line has been altered, but command line options for CF77 Version 3.0 are still recognized. A warning message tells users to switch to the CF77 Version 4.0 format.

The full command with all command options has the following form:

```
cf77 [-Z phase] [-Wd"fpp"] [-Wu"fmp"]
[-Wf"cft77"] [-Wa"as"] [-Wl"segldr"] [-c]
[-C[cpu][,hdw]...] [-F] [-g] [-J] [-l lib]
[-L dir] [-M] [-o outfile] [-S] [-T] [-v]
[-V] [--] [file] . . .
```

The CF77 compiling system will attempt to produce an executable program, **a.out**, from your Fortran source code. To compile a Cray Fortran program in UNICOS, enter:

```
cf77 prog.f
```

where "**prog.f**" is your Fortran source file.

To compile your program without creating an executable **a.out**, you may use the **-c** option to create an object module:

```
cf77 -c -Zv sub.f
```

This object module runs **sub.f** through the FPP and compiles the subroutine with the CFT77 compiler, producing a relocatable object module **sub.o** that you can incorporate into a library or link to a main program.

The **-W** command line option passes command line arguments down to the various phases of the compiling process. These options are the same options you use if you call each of the individual programs independently: FPP, FMP, CFT77, etc.

The default (unspecified **-Zc**) compiles the program with the CFT77 compiler and then runs the object module through the SEGLDR to produce the executable code. The **-Z phase** option on the command line allows the user to control what phase of the compiling system is invoked. For instance, the **-Zp** option will invoke all phases (including the Dependency Analyzer [FPP], the Translator [FMP], the Fortran Compiler [CFT77], and the Segment Loader [SEGLDR]). Other **-Z** options will enable only the Dependency Analyzer or the Translator prior to compiling and linking the program.

The new CFT77 compiler offers an expanded capability for inlining Fortran code. You can control the inlining explicitly by using the **-I** command line option, or you can invoke automatic inlining with the **-o** command line option. The **-I file** will try to inline subprograms contained in a specific **file** or list of files separated by commas (**-I file1, file2, file3, ...**). If a pathname is specified, **-I pathname** will search all of the files in the directory for subprograms to inline. The **-o inline**[1|2|3] command line option will enable automatic inlining to three levels in the calling tree. To enable two levels of automatic inlining during compilation of your program, enter:

```
cf77 -Wf"-o inline2" prog.f
```

In this case, CFT77 recursively inlines to two called subroutines and functions that are in the file **prog.f** to two levels.

For a complete explanation of all command line options, enter (in UNICOS):

```
man cf77
```

Or refer to *CF77 Compiling System, Volume 1: Fortran Reference Manual* (SR-3071).

GRAPHICS NEWS

CHANGES IN BLACK-AND-WHITE FILM SERVICES

To reduce costs and to increase the efficiency of operations, CTD is planning to discontinue the use of black-and-white film services now provided by the Information International Incorporated FR80 film recorder. Since the Matrix camera became available, no one is using the FR80 35mm black-and-white services. The following 35mm black-and-white graphics drivers will no longer be available on the central computers:

U35BW	unsprocketed 35mm black-and-white film
SPU35BW	spooled version of above
S35BW	sprocketed 35mm black-and-white film
DS35BW	double-frame sprocketed 35mm black-and-white film

Also, CTD will remove the PS35BW, PSPU35BW, PDS35BW, and PU35BW MVS cataloged procedures.

In addition, current 16mm black-and-white film users will have their output recorded on color reversal film instead of black-and-white film. This procedure will allow CTD to reduce costs by removing its virtually unused black-and-white film developer. Turnaround time for all 16mm film will be two days. 16mm black-and-white film users should follow the instructions presented below to continue to receive black-and-white output recorded on color reversal film.

Cuechart, Tellagraf, and Disspla users can still obtain black-and-white slides by using the Matrix camera. After you create a graphics metafile, use the VMS and CMS **HARDCOPY** command or the MVS PMATRIX cataloged procedure to request the Matrix camera. However, you must also remove any explicit color commands or subroutine calls or revise those statements to request the color white.

Tellagraf and Cuechart users must also disable the default use of color by inserting the following statement into the TAGPRO DATA file in CMS or the TAGPRO.DAT VMS file:

```
PRIMARY DEVICE SEQUENCE TABLE is 'BW.ST'
```

Users who create graphics metafiles with the "SECONDARY DEVICE" should revise this statement accordingly.

CTD is considering alternatives for replacing the 16mm film service. Disspla users who rely on 16mm film for creating film animation should discuss their needs with the User Services Manager (extension 2-7419).

CHANGES IN COLOR FILM SERVICES

The color 35mm Matrix camera has become the primary device for generating 35mm color slides and 8-by-10 color transparencies. Therefore, CTD will remove the III FR80 S35CLR and DS35CLR graphics drivers from the central CMS, VMS, and MVS systems.

Users can continue to create color graphics metafiles, to send them by using the **HARDCOPY** CMS and VMS commands or the PMATRIX MVS cataloged procedure, and to obtain slides and transparencies. In addition, CTD will remove the PS35CLR and PDS35CLR MVS cataloged procedures from the MVS system.

MANAGEMENT INFORMATION SYSTEMS

AMOS DECENTRALIZED ORDERING VIA YOUR TERMINAL

ANL Cost Center Managers can now request authorization to access the Argonne Materials Order System (AMOS) to place their orders directly. This new decentralized order entry capability is not recommended for all people authorized to order from AMOS, but rather for those divisions and cost centers that channel their AMOS orders through selected individuals. Decentralized order entry can provide better cost control of AMOS orders and access to more current information at the cost center level. The current list of AMOS vendors appears in Table 1.

Table 1: AMOS Vendors

Catalog Code	Vendor or Location	Description
A1	Publix Office Supplies, Inc.	Office Supplies
B1	Joliet Valve	Plumbing Supplies
C1	Gee Lumber	Lumber
D1	Lion Photo	Film and Photographic Supplies
E1	Englewood Electric	Electric Supplies
F1	Fisher Scientific	Laboratory Supplies
G1	Baxter Chemical	Chemicals
H1	Fancy Colours	Paint Supplies
K1	OHM Electronics	Electronics
M1	AGA Gas Central	Gas Supplies
N1	Krest Uniform	Uniforms and Clothing
SE	Stores East	ANL Warehouse

Authorized AMOS requisitioners can still place their orders by (1) calling AMOS Order Entry at extension 2-7523, (2) using the Stores Order electronic mail tools in CMS or on some of the departmental VAX/VMS systems, or (3) completing a "Request for Stores Material" (ANL-32A) form and mailing it to AMOS order entry.

The new option, decentralized order entry, can offer several advantages: (1) access to additional AMOS information (including many non-stock items), (2) immediate validation of order information, (3) less keying in because of the system's use of information already in the system, and (4) more timely order generation by the AMOS vendor compared to the Stores Order or ANL-32A methods.

For several months, a few individuals in the Chemical Technology Division, the Computing and Telecommunications Division, and the Electronics Department have successfully used the AMOS decentralized order entry. The users' response to the new capability has been very favorable. One of the benefits most often mentioned is the ability to inquire on the receipt status of ordered items.

If you believe you can benefit by using decentralized order entry or would like additional information, contact your AMOS Cost Center Manager. AMOS Cost Center Managers should call the AMOS Contract Coordinator (extension 2-7655) to obtain proper authorization for AMOS decentralized order entry.

RFP ISSUED FOR THE INTEGRATED MATERIALS MANAGEMENT SYSTEM

On Thursday, October 4, 1990, Argonne issued a Request for Proposal (RFP) for a new Integrated Materials Management System (IMMS). The RFP seeks commercially available software that may eventually replace functions now performed by the Argonne Materials Order System (AMOS), the Automated Materials/Payables System (AMPS), the Stock Tracker System (STS), and the Subcontract System.

The goal of IMMS is to provide a more integrated systems approach to the materials and services procurement process. Requirements for IMMS were developed by interviews and by analyzing current business needs in the overall procurement process. The requirements were then refined by numerous reviews by representatives from the scientific divisions, CTD, the Office of the Chief Financial Officer (OCF), the Support Services Division/Materials and Services Department (SSD-MS), and the Support Services Division/Procurement Department (SSD-PRO).

Responses to the RFP are due back on November 16, 1990. The IMMS Technical Evaluation Team, which is comprised of individuals from the Biological and Medical Research Division (BIM), CTD, OCF, SSD, SSD-MS, and SSD-PRO, will then begin evaluating the proposals. The evaluation process should take several months, depending on the number of viable proposals submitted. Several factors will be considered (including technical merit and total system cost) in determining how to proceed with implementing IMMS. Depending on the outcome of the entire evaluation process, ANL hopes to acquire parts of the IMMS software, to educate key individuals, and to begin detailed planning for implementing the system later this fiscal year. Further software acquisitions and full implementation of the system will be accomplished in succeeding years.

While users in SSD-PRO, SSD-MS, and OCF will use IMMS to streamline their efforts in the overall procurement and materials distribution processes, Laboratory requisitioners will also benefit. IMMS will provide a common requisitioning system and will offer requisitioners new capabilities to track their requisitions and purchases. Progress on this important multi-year project will be reported in future editions of the *Newsletter*.

INTEGRATED FINANCIAL SYSTEM UPDATE

The Office of the Chief Financial Officer (OCF) closed the books for FY1990 during the first week of October 1990. Consequently, the Integrated Financial System (IFS) Project Team submitted the user reports on October 9, 1990. The FY1990 financial system close was the smoothest year-end close that we have ever experienced, allowing us to run the user reports two days ahead of last year's schedule.

As reported at the October 1990 Financial Applications Committee to Effect Telesis (FACET) meeting, OCF is attempting to close the October 1990 books on or very close to the regular month-end schedule to provide more timely information to the users at the beginning of the new fiscal year. If we are successful, the October 1990 month-end reports will be available during the first full week of November 1990, two weeks earlier than last year's schedule.

Currently, the IFS Project Team is planning the FY1991 tasks. Some of the tasks will provide many new capabilities to financial system users. We will detail these tasks in the December 1990 *Newsletter* and at the November 1990 FACET meeting.

Progress on all phases of the IFS project will be reported at the FACET meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

MVS NEWS

VS FORTRAN VERSION 2.4.0 OF THE IBM VS FORTRAN COMPILER AND LIBRARY AVAILABLE FOR TESTING IN MVS BATCH

Version 2.4.0 of the IBM VS Fortran program product is now available for testing in MVS batch. The version of VS Fortran in current production in MVS is Version 2.3.0. Version 2 Release 4 of VS Fortran is IBM's latest version of this compiler and library. There are many new enhancements in Version 2.4.0 that are useful for debugging and optimizing programs (even programs written for non-IBM systems) and for converting existing non-IBM Fortran programs to use in MVS batch.

VS Fortran Version 2.4.0 has enhancements to:

- Input/Output support in VS Fortran Version 2.
  - —Improved data transfer rate for sequential DASD and tape input/output on MVS systems.
  - —Ability to perform data striping (parallel I/O) on sequential datasets.
  - —Ability to detect input conversion and record length errors.
- The Intercompilation Analyzer (ICA), which can detect incompatibilities between separately compiled program units. The ICA compile-time option invokes this analysis during compilation.
- The language capabilities of VS Fortran Version 2.
  - —Ability to use graphic relational operators as an alternative to Fortran 77 relational operators.
- The pseudo-assembler listing provided by VS Fortran Version 2. This listing lists the code generated by the compiler.
- The math routines.
  - —Single, double, and extended precision MOD library functions are more precise.
  - —Single and double precision scalar complex divide routines are more precise and faster.
  - —The old complex divide and MOD functions are in the alternate math library (SYS2.VSF2MATH).

To test VS Fortran 2.4.0, you must override the STEPLIB, LIBRARY, and/or GOLIB symbolic parameters; different combinations of these parameters appear in each FORTVxxx cataloged procedure. See Table 2 to override parameters for each procedure.

Table 2

Required Overrides To Test VS Fortran 2.4.0

	C	CD	CEG	CEP	CLG	CP	EG	EP	LG
STEPLIB='SYS2.VSF2COMP'	X	X	X	X	X	X			
LIBRARY='SYS2.VSF2FORT'			X	X	X		X	X	X
GOLIB='SYS2.VSF2LOAD'			X		X		X		X

For example:

```
//step EXEC FORTVCEP,
//      STEPLIB='SYS2.VSF2COMP',
//      LIBRARY='SYS2.VSF2FORT'
```

If you create permanent load modules from Version 2 object code, you must include dataset SYS2.VSF2LOAD in your execution step STEPLIB specification. For example:

```
//step    EXEC PGM=mypgm
//STEPLIB DD   DISP=SHR,DSN=Bnnnnn.myload
//        DD   DISP=SHR,DSN=SYS2.VSF2LOAD
```

VS Fortran Version 2.4.0 is documented in *VS Fortran Version 2 Language and Library Reference* (SC26-4221-04) and *VS Fortran Version 2 Programming Guide* (SC26-4222-04), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies). The manuals with document numbers ending in "-03" are for Version 2.3.0.

If there are no difficulties, CTD will make Version 2.4.0 the production version on Monday, December 10, 1990.

PERSONAL COMPUTING AND WORKSTATIONS

SAS AVAILABLE FOR SUN WORKSTATIONS

SAS Institute has announced the availability of products for Sun Workstations (including the SAS Base product, SAS/STAT, and SAS/Graph). SAS Institute has a pricing structure where the unit product price decreases with an increase in the number of Workstation units purchased. SAS applies units in terms of Workstation capabilities. For example, SUN3 Workstations are rated at one unit, SUN 4/260 Workstations at two units, and SUN 4/330 Workstations at three units.

CTD is planning to coordinate the purchase of multiple copies of SAS products so that users can take advantage of multiple purchase discounts. SAS delivers a master copy of purchased products that requires central coordination for distribution of copies and updates. Based on its experience with SAS usage, CTD plans to distribute the SAS Base product, SAS/STAT, and SAS/Graph as a set.

CTD needs to determine the level of interest in acquiring these SAS products for Sun Workstations. Based on a single copy license, the current one Workstation prices are SAS Base ($695), SAS/STAT ($575), and SAS/Graph ($575). While the exact price will be determined by the number of commitments to the multiple copy license, we estimate that the price for the three product set for a single Workstation unit will be approximately $1,000 the first year, a savings of almost 50 percent. Although SAS requires a maintenance fee for continued use in subsequent years, coordinating future updates for multiple copies will also reduce users' maintenance costs.

For more information, contact Mike Thommes at extension 2-5461 or at electronic mail address B14908@ANLVM.

TELECOMMUNICATIONS NEWS

UPDATE ON FDDI PLANS

FDDI is a widely accepted computer networking standard. It specifies a 100,000,000 bits per second (bps), fiber optic-based network. The initial phase of FDDI at Argonne established a prototype network that connected an Ethernet Local Area Network (LAN) in Building 362 to a LAN in Building 221. The next phase (to be completed by the end of 1990) is to connect the Cray X-MP/14 to the FDDI network and to connect the Laboratory-wide Ethernet network to the FDDI network (see Figure 1). The equipment to be installed consists of a FDDI/Cray Low-Speed Channel router and a FDDI/Ethernet multi-protocol router. We purchased this equipment with FY1990 General Purpose Equipment (GPE) funds. Once this equipment is in place and tested, it will provide the production Transmission Control Protocol/Internet Protocol (TCP/IP) path to the Cray. TCP/IP users will notice no difference between the current Sun gateway and this new FDDI path.

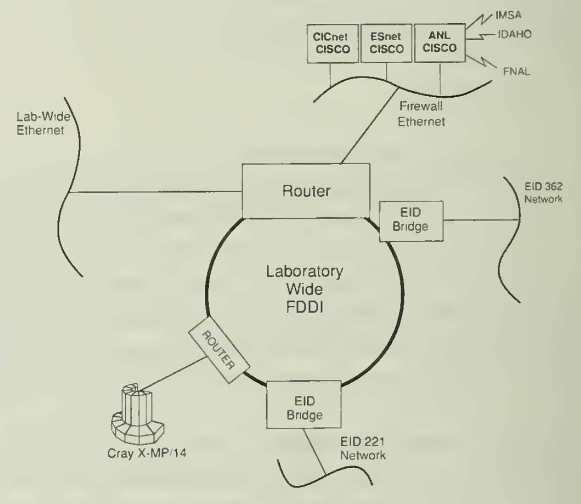

Figure 1: Argonne National Laboratory Near-Term FDDI Connections

In addition to providing TCP/IP access to the Cray, this new equipment will lay the foundation for future FDDI expansion. For example, the new National Science Foundation (NSFnet) node (see "ANL To Join NSFnet" in the July 1990 *Newsletter)* will have an external T3 connection (45,000,000 bps) and an internal FDDI interface. The new FDDI/Ethernet router will offer the connection between the NSFnet FDDI connection and ANL networks, thus providing a high-speed path between Argonne networks and computing facilities residing on the NSFnet.

We now use FDDI as a backbone for lower-speed LANs. Also, FDDI can provide the full bandwidth (100,000,000 bps) directly to computers and workstations. Applications requiring the fast transmission of large amounts of data can benefit from this type of connection. Computer interfaces offering direct FDDI connections are just beginning to be developed. We have used FY1990 Support Development Funds (SDF) to refine a plan for implementing FDDI at Argonne and to lay the groundwork for FDDI workstation interface evaluation.

We have submitted a proposal for FY1991 SDF to set up a beta test and evaluation facility for FDDI computer interfaces. CTD intends to obtain some of these interfaces within the next year and to demonstrate the performance enhancements FDDI will offer high bandwidth applications, such as scientific visualization.

CICS CLEAR KEY BUG FOUND

Users who use the tn3270 emulation program to access the ANL Customer Information Control System (CICS) have reported a difficulty where pressing the CLEAR key to exit a CICS application screen causes the user's terminal to "hang." In response, the CTD Computer Network Section has conducted an investigation and has discovered a bug in the tn3270 software running on the VAXes (MultiNet), the Suns (SunOS/BSD), and personal computers (Clarkson/NCSA). The bug causes the tn3270 program to enter an infinite loop. CTD has acquired new versions of the executable modules for MultiNet 2.2 (telnet.exe) and the Sun3 or Sun4 architectures (tn3270). We expect a new version from Clarkson, CUTE:2.2TN (tn3270.exe), soon for personal computers.

The instructions for obtaining the new executable module for the VAX/MultiNet 2.2 are available on ANLCV1 in the file ANL_PRODUCTS:[MULTINET]0README.1ST.

The instructions for obtaining the new executable modules for Sun/Sparc machines are available on sungate.ctd.anl.gov in the file /home/guest/readme.tn3270.

A future *Newsletter* will announce when a new tn3270 diskette is available for IBM personal computers.

PBX MODEM POOL ENHANCEMENTS

CTD has installed three enhancements to the PBX modem pool:

1. New 19.2 bps (bits per second) modems.
2. 2400 bps modem upgrades with industry standard Microcom Network Protocol (MNP) Class 5 data compression.
3. New modem management procedures.

After a thorough evaluation of high-speed modems, CTD has selected and installed a new Private Branch Exchange (PBX)-based high-speed 19.2K bps modem pool (Telebit Corporation's T2500 modem). To learn how to use the new modem, see "How To Use the High-Speed (19.2K bps) Modem Pool" in this *Newsletter*.

The Telebit T2500 modem provides the following speeds and protocols:

19200 bps	The Packetized Ensemble Protocol (PEP) Telebit Corporation proprietary with PEP error correction and data compression; non-standard protocol.
18000 bps	PEP Telebit Corporation proprietary without error correction and data compression; non-standard protocol.
9600 bps	PEP Telebit Corporation proprietary with PEP error correction and data compression; non-standard protocol.

9600 bps	The standard Consultive Committee for International Telegraphy and Telephony (CCITT) V.32 mode with MNP Class 5, error correction, and data compression.
9600 bps	CCITT V.32 mode with CCITT V.42 error correction and CCITT V.42bis data compression.

To upgrade PBX-based low-speed (300, 1200, and 2400 bps) modem pools, CTD has installed MNP Class 5 firmware in PBX modem pools. MNP Class 5 service provides the user with data compression, which combined with MNP Class 4 also provides error correction. MNP Class 5 allows throughput of almost twice the connection speed. Typically, with MNP Class 5 data compression, there is a 1.6 to 1 increase in throughput. MNP Class 5 dynamically adjusts to the type of data transmitted for maximum compression. MNP Class 5 performs virtually free of errors.

Users can use the new features of MNP Class 5 only if a MNP Class 5 modem is used to establish the dial-up connection (that is, both the originating modem and the answering modem use the MNP Class 5 protocol).

CTD has incorporated modem management procedures to measure performance, usage patterns, and daily failure statistics. Now, CTD gathers modem failure statistics (with print-out reporting) by using an IBM Personal Computer program to test the modems periodically. These procedures improve the reliability of PBX modem pools.

HOW TO USE THE HIGH-SPEED (19.2 KBPS) MODEM POOL

CTD has added twelve new high-speed 19.2 kilobits per second (Kbps) Telebit T2500 modems to the Private Branch Exchange (PBX) modem pool (see "PBX Modem Pool Enhancements" in this *Newsletter).* Table 3 shows the current ADI data groups for the high-speed modem pool.

Table 3: Telephone Numbers for ADI Data Groups in the High-Speed Modem Pool

Terminal Server	Dial-Up Number	Service for
DECserver	(708) 972-8745	ANL VAX Computers
Hydra (full screen)	(708) 972-3219	CTD-IBM Computers (3270 Emulation)
X.25	(708) 972-2519	CTD-IBM Computers
ESnet	(708) 972-7920	ESnet Computers

Requirements for High-Speed (9.6 Kbps-19.2 Kbps) Remote Dial-Up Access

The Computer Systems Data Administrator must set the computer access ports as follows:

- Device access port(s) set at a speed of 19.2 Kbps.
- Device access port(s) set for eight data bits, one stop bit, and parity of NONE.
- Device access port(s) set for data pacing by using XON-XOFF set to ON.
- The Asynchronous Data Interface (ADI) data group designated for high-speed access should have a terminal type of 03.

Dialing from Offsite

A remote user using a high-speed modem to dial an ANL ADI data group designated for high-speed should:

1. Set the Terminal Profile as follows:
    - Speed set at 9.6 Kbps or 19.2 Kbps.
    - Eight data bits, one stop bit, and parity at NONE.
    - Data pacing by using XON-XOFF set to ON.
2. Set the Modem Profile as follows:
    - Modem Speed at 9.6 Kbps, V.32/MNP Class 5 or V.32/V.42/V.42bis. 9.6 Kbps/PEP or 19.2 Kbps/PEP.
    - Data pacing by using XON-XOFF set to ON.

- Baud adjust set to ON.

How the PBX Completes the Offsite Call

From a remote site using a high-speed modem, the following actions take place when a user calls the telephone number of the desired ADI data group designated for high-speed dial-up operation:

- PBX recognizes the called ADI data group designated to work with the high-speed modem pool and switches in a modem from the high-speed modem pool.
- PBX directs the call to the ADI data group.
- The computing system's access port answers the call, usually displays a unique logon banner, and allows the user logon access.
- The user logs on with a computer session.
- When the user logs off, the call is dropped and all devices disconnect.

Dialing Offsite

An ANL user dialing a remote high-speed modem from an ADI should:

1. Set the Terminal Profile as follows:
    - Speed at 19.2 Kbps.
    - Eight data bits, one stop bit, parity at NONE.
    - Data pacing by using XON/XOFF set to ON.
2. Use a Digital Line Terminal Type 15 by:
    - Calling extension 2-4400 to change your terminal type permanently.
    - Or temporarily changing the terminal type. See *Asynchronous Data Communications User Guide with ADI-ACI 100 Operating Instructions* (ANL/TM 469), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

From an ADI, the user dials the remote modem's telephone number. The following actions take place:

- PBX recognizes the user's ADI terminal type 15 and switches in a modem from the high-speed modem pool.
- PBX automatically dials the remote modem's telephone number.
- The remote modem answers the call and establishes a connection with the pool modem.
- The Remote Computing System's access port answers the call, usually displays a unique logon banner, and allows the user access to log on.
- The user logs on with a computer session.
- When the user logs off, the call is dropped and all devices disconnect.

CTD has verified that the Telebit T2500 modem works with the following high-speed modems: MultiTech Systems MT932EA Multimodem V32, Microcom QX/3296c, and Telcor 3238MA.

VAX/VMS NEWS

CTD TO CHECK PASSWORDS ON CENTRAL VAX CLUSTER

DOE's Computer Incident Advisory Capability (CIAC) has identified the use of trivial or easily guessed passwords as a primary cause of computer break-ins. CTD has acquired the Security Profile Inspector (SPI) software from CIAC and will run it in December 1990 to identify central VAX cluster accounts with easily guessed passwords. Thereafter, we will routinely check passwords at least once a year.

You should review the way that you select your VAX/VMS account passwords and, if necessary, change your password to improve the security of the VAX cluster and your data (see Table 4).

Many users have accounts on multiple systems at the Laboratory. Several of these systems use the trusted host concept (that is, if you can log into one

Table 4: Requirements for User Logon Passwords

Policies:

- You can make your passwords any combination of alphanumeric characters, with the first character non-numeric.
- You must change your password at least every six months.
- You should avoid writing your password down anywhere.
- You should avoid storing your password on a personal computer disk or in unprotected disk files.

Recommendations:

- You should make your password at least six characters.
- You should not choose a word easily associated with you.
- Your password should be easy for you to remember.
- Your password should not be a word in the dictionary.
- A good password format is a combination of two short words connected by one or more special characters or numbers.

of the hosts, you need not go through login authentication to access other hosts). For example, .rhost files on Transmission Control Protocol/Internet Protocol (TCP/IP) hosts allow you to gain access to many of these hosts once you have logged into one. If you have used an easily guessed password on one host, an intruder may be able to log into this host and gain access to your account on other hosts (see "Network Security Risks of Using .rhost" in the July 1990 *Newsletter).* Poorly chosen passwords are a risk for you and for all other users on these hosts.

SPI does not disclose a user's password. It only reports that a password could be matched by using the SPI algorithms. SPI checks for passwords identical to the user's name and for null passwords. It also uses a 9,000 word dictionary containing common first and last names, historical places, and names of characters from popular books and movies to check passwords.

What will happen if SPI guesses your password? The Laboratory's Computer Protection Manager, Jean Troyer, will send you a letter notifying you that you have made a poor password choice for your central VAX cluster account. Copies of the letter will also be sent to your Division's Computer Protection Program Representative and to your Division Director.

VMS 5.3 INSTALLED

On October 6, 1990, CTD installed VMS 5.3 on the Argonne central VAX cluster. This installation includes both the upgrade from VMS 5.2 to VMS 5.3 and the application of maintenance updates to VMS 5.3. The resultant system is known as VMS 5.3-1. VMS 5.3 includes enhancements to the EVE editor and the underlying Text Processing Utility (TPU) and to the X Window System (including the ability to run X Window sessions by using the Transmission Control Protocol/Internet Protocol [TCP/IP] network as transport).

If you use a TPU editor such as EVE, the Extensible VAX Editor, you may notice differences when exiting if you use an initialization file or if you change some attributes. An initialization file is a readable file that contains commands to EVE and TPU to customize your editing environment (for example, we described an initialization file that contains commands to emulate the EDT emulator in "Using EDT Emulation in the EVE Editor" in the August 1989 *Newsletter).* Upon exiting, the editor asks if you wish to save your changed attributes from the initialization file. There are two ways to avoid the prompting. You can enter the TPU command

```
TPU EVE$$X_ATTRS_MODIFIED:=FALSE
```

into your EVE initialization file. You will need to edit your initialization file to add new attributes. You may also answer affirmatively, and the editor will generate a "section" file with the name you supply containing a compiled version of the commands in your initialization file. You can make the section file available to the editor in subsequent sessions by creating an equivalence to the logical name TPU$SECTION by using the **DEFINE** command. For example, enter:

```
$ DEFINE TPU$SECTION SYS$LOGIN:TPUSECT.DAT
```

Use the HELP documentation in the editor to learn more about saving the section file and setting editor attributes to customize your editing environment. To obtain HELP, enter (after pressing the DO key [F16] or the sequence of keypad keys PF1 and 7 [kp7]):

```
$ HELP
```

VMS 5.3 now contains logic that enables you to use the TCP/IP network as transport for both client and server X Window System sessions. We have enabled the MultiNet TCP/IP network software to interface with the VAX/VMS X Window System software (DECwindows). This interface allows users of workstations with both TCP/IP network software and X Window System software to establish X Window sessions with the Argonne central VAX cluster as a client. After logging into the VAX 8700 from your workstation by using telnet or rlogin, enter

```
$ SET DISPLAY /CREATE /TRANSPORT=TCPIP -
        /NODE=your-workstation-name
```

before running your X Window System application. If you are unsure about the required workstation node name, enter the **SHOW TERMINAL** command to find out how your workstation is known to the VAX 8700. To test the system, try the DECwindows paint program on the VAX cluster by entering:

```
$ RUN SYS$SYSTEM:DECW$PAINT
```

The application will open its output windows on your workstation. Be sure to enter the proper commands on your workstation to tell it to expect X Window System transactions to come from the VAX 8700 (see the guide for your workstation).

Also, you may use the DECW$PUZZLE, DECW$NOTEPAD, DECW$MAIL, DECW$CALC, and DECW$CARDFILER sample applications. Currently, other VAX 8700 applications (including ANSYS and SAS) have X Window System capabilities, and the Disspla graphics system has an X Window driver. In future articles, we will provide more details about using these applications.

If you have any difficulties with VMS 5.3-1 or the commands or procedures described in this article, call the User Services consultants at extension 2-5405.

SAS RELEASE 6.06 INSTALLED AS A TEST VERSION ON THE VAX 8700 COMPUTER

CTD has installed the new VMS version of the Statistical Analysis System (SAS) Release 6.06 on the central VAX 8700 cluster. Version 6.06 of the SAS system is a total rewrite of the software in the C programming language instead of PL/I. This version delivers several new features and performance enhancements. It will be available for testing until December 13, 1990, when it will replace SAS Release 5.18 as the default production SAS version on the VAX 8700 computer.

SAS has made performance improvements in SAS dataset input/output (I/O) and in processing large raw data files. New SAS features available with this release are:

- X Window System Interface. The SAS system for VMS includes an X Window System interface, so you can use your X Window workstation with SAS 6.06 on the VAX 8700.
- Editor Access. In Release 6.06, you can choose between the SAS Text Editor or the VAX Text Processing Utility (TPU) editor when you edit text in the Program Editor, Log, or Output window. The SAS Text Editor uses the Display Manager System (DMS). DMS is described in more detail later in this article.
- SAS Macro Facility. The full use of the SAS macro facility is available in Release 6.06.
- Configuration Files. Now you can indicate default SAS options by using your own SAS configuration files. This capability allows options to be indicated via a SAS$CONFIG logical name, which can be defined in the PROCESS or GROUP logical name tables.
- New and Improved Documentation. The following manuals, available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies), provide fuller descriptions of the features:

SAS Companion for the VMS Environment,
Version 6, First Edition (1-55544-392-3)
SAS Language and Procedures Introduction,
Version 6, First Edition (1-55544-410-5)

SAS Language: Reference, Version 6, First Edition (1-55544-381-8)
SAS Language and Procedures: Usage, Version 6, First Edition (1-55544-371-0)
SAS Language and Procedures, Syntax, Version 6, First Edition (1-55544-400-8)
SAS Procedures Guide, Version 6, Third Edition (1-55544-378-8)
SAS Guide to Macro Processing, Version 6, Second Edition (1-55544-382-6)
SAS/Graph Software Introduction, Version 6, First Edition (1-55544-395-8)
SAS/Graph Software Reference, Version 6, First Edition (Volumes 1 and 2) (1-55544-379-6)
SAS/STAT User's Guide, Version 6, Fourth Edition (Volumes 1 and 2) (1-55544-376-1)

CTD will order the following documents for users on request:

SAS Technical Report P-143: Writing Interfaces for Special External Files under the VMS SAS System, Version 5
SAS Technical Report P-195: Transporting SAS Files Between Host Systems (1-55544-374-5)
SAS Technical Report Y-106: User Exit Facilities for the Version 5 SAS System under VMS

The following features are either no longer available or have changed in Release 6.06:

LIBSEARCH Statement
Member Types
Procedure Output Listing Formats
Default Log and Listing Carriage Control and Record Format
User Exit
Special External File Interface
User-Written Formats, Informats, Procedures, and Functions
SAS Catalog Conversion
Accessing Version 5 SAS Datasets
Transporting Data Files

For a complete list of the new features and enhancements of SAS Release 6.06, refer to *SAS Technical Report: P-204, SAS Software: Changes and Enhancements, Release 6.06* (1-55544-409-1), available at the Document Distribution Counter. To obtain online SAS Release 6.06 information, enter:

```
$ TYPE/PAGE SYS$HELP:SAS606.RELEASE_NOTES
```

Before December 13, 1990, SAS Release 6.06 is available for testing through the SETUP function:

```
$ SETUP SAS/V=SAS606
```

You can run SAS in two interactive modes. The first, SAS interactive line mode, is the default interactive mode provided by SAS 5.18. The other interactive mode, SAS Display Manager mode, is the default for Version 6.06 and uses DMS. DMS is a windowing facility for viewing and performing tasks with the SAS system. You can use it on many terminal types (for example, VTnnn terminals or terminal emulators). To display terminal types usable with DMS, enter:

```
$ TYPE SAS_FSDEVICE
```

DMS offers pull-down menus (the PMENU facility), sizing commands, icons, and overlapped windows. To activate SAS with DMS, enter:

```
$ SAS
```

By default, DMS creates two windows (the PROGRAM and LOG windows) on your display screen. If you produce any printed procedure output, an OUTPUT window is created. Enter the **KEYS** command at any window command line to see which program function keys are defined for that window. To exit SAS, enter:

```
ENDSAS
```

To run SAS without DMS (that is, in SAS interactive line mode), enter:

```
$ SAS/NODMS
```

SAS 6.06 includes a variety of drivers to generate Computer Graphics Metafile (CGM) binary metafiles. When creating output from various SAS/Graph procedures, you can get hardcopy output from these graphics metafiles by using the **HARDCOPY** command. Because SAS now has its own CGM metafile drivers, CTD will no longer supply its local enhancement to SAS to produce Computer Associate's POP or CGM metafiles.

If you are interested in the features of SAS Version 6.06, CTD is offering a short class (see the schedule appended to this *Newsletter).*

Direct questions and comments to Mike Thommes at extension 2-5461 or via electronic mail at ANLVM::B14908.

MULTINET 2.2 INSTALLED ON THE CENTRAL VAX CLUSTER

On October 16, 1990, CTD installed MultiNet Version 2.2 on the central VAX cluster. The new release mainly fixes bugs from Version 2.1. It also works with VMS 5.4 and provides the following new user application features:

- **APPEND**, **AGET**, and **APUT** Commands. The File Transfer Protocol (FTP) recognizes these commands and allows the user to retrieve or store a file by appending the file to an already existing file. These commands require the transfer be conducted in an appropriate structure (FILE or RECORD).

- FTP Switches (/USERNAME=, /PASSWORD=, /TYPE=, /STRUCTURE=, and /MODE=). These switches allow the user to specify an initial username, password, and transfer mode on the Digital Command Language (DCL) command line. Additionally, FTP now allows you to use the **ftp** command to execute on the DCL command line. For example:

  ```
  FTP host PUT lfile rfile
  ```

  where "host" is the remote host, "lfile" is a local file, and "rfile" is a remote file. Then FTP will automatically exit. This example assumes that your remote host username and password are in the file SYS$LOGIN:FTP.INIT.

- FTP Option EXIT-ON-ERROR. This option helps FTP's use from batch command files. If an error occurs while this option is set, FTP will immediately exit.

- FTP Multiple Internet Addresses. If a host is listed in the Domain Name System with more than one Internet Address, FTP will try to connect to each address if the first connection attempt fails.

- Line Printer Daemon (LPD) and Personal Computer Network File Server Daemon (PCNFSD) Printer System. The LPD Client (Symbiont), LPD Server, and PCNFSD Server have user-configurable dispatcher codes that you can edit to change the way a print job is submitted or the way print options map to or from VMS queue options. This capability allows the System Administrator to customize the queuing system to meet local needs. CTD will install an exit that tells Alisa-Print software whether it should handle a print job as ASCII text or as PostScript. This exit will allow Unix system users to print either ASCII text or PostScript files with **lpr**.

- Berkeley Unix **rcp** Command. This command copies files between the central VAX cluster and a remote host. You can use **rcp** both interactively and in batch mode. The **rcp** command uses the .rhosts file on the remote host for user authentication.

- Network Time Protocol (NTP) Updates. The NTP daemon in MultiNet V2.2 conforms to Revision 1 of the NTP specification and is fully documented.

- Simple Mail Transfer Protocol (SMTP) Mail Symbiont. This feature resubmits undeliverable mail with the /PARAMETER qualifier containing a list of reasons the mail was undeliverable. To diagnose difficulties with undeliverable mail remaining in the queue, use:

  ```
  $ SHOW QUEUE/ALL/FULL MULTINET_SMTP_QUEUE
  ```

- Telnet Enhancements. Telnet will attempt to connect to multiple Internet addresses. If a host is listed in the Domain Name System with more than one Internet address, Telnet will try to connect to each address if the first connection attempt fails.

X WINDOW DRIVER ADDED TO DISSPLA 11.0

CTD has obtained a beta version of an X Window driver from Computer Associates (CA) for Disspla 11.0. This driver works with Version 11, Release 2, of X Window Xlib software. The driver allows you to write a Disspla X Window client application on the central VAX 8700 cluster. You can use either the Digital Equipment Corporation network (DECnet) or the Transmission Control Protocol/Internet Protocol (TCP/IP) as the transport mechanism for the X Window protocol between the X Window client and server. The X Window server can be a VAXstation, a Unix workstation, an Apple Macintosh with Mac X, etc.

The CA X Window driver can handle 256 colors. You can use the driver to output to any window controlled by a user-written X Window application. You can specify coordinates for the window origin and window dimensions. Also, you can create your own color maps. On monochrome displays, you can use dithering to simulate shades of grey. When you have multiple graphs to display, the X Window driver allows you control over plot stacking. Also, it can automatically redraw portions of windows that had been previously covered by other windows.

To use the new X Window driver in Disspla 11.0, enter:

```
$ SETUP DISSPLA
```

For more information on the X Window driver and driver routines and arguments, see the file DISLIB_DRVHELP:QSXWN.DAT.

If you have questions about Disspla, contact the User Services consultants at extension 2-5405.

IMPROVED 3800 AND FICHE QUEUES AVAILABLE

CTD has installed new print queue software (written by John Osudar of the Electronics Department) on the Argonne central VAX cluster to send output to the IBM 3800 high-capacity laser printer and to the microfiche printer. This software enables you to print files that you previously could not print on the IBM 3800 laser printer, to include flag pages and header information on each page, and (in general) to use all the VMS **PRINT** command options and features.

Some of the features are:

- Allowing file specification wildcards.
- Directing multiple files to one microfiche film.
- Including header text on printed pages.
- Creating double-spaced output.
- Converting embedded printer control characters.
- Converting "stream" file types.
- Producing flag and burst pages.
- Producing multiple copies in print jobs.

Options that you may use are /HEADER, /SPACE, /FLAG, /SINCE, /AFTER, /JOB_COUNT, etc.

The specific characteristics of the two printers available to you are:

- IBM 3800 forms flash
- Microfiche A and B titles

To take advantage of these features and options, add the options you need when you use the VMS **PRINT** command and direct your files to the 3800 or FICHE queues on the VAX cluster. For example, to print all the listing files in your current or default directory created after September 1, 1990, enter:

```
$ PRINT *.LIS /QUEUE=FICHE /SINCE=1-SEP-1990
```

All of the listing files will appear on a single microfiche film with flag pages that make it somewhat easier to identify specific files on the film.

To learn more about the **PRINT** command features and options that are available, enter:

```
$ HELP PRINT
```

To use the IBM 3800 forms flash option, add the name of the form to the **PRINT** command by using the PARAMETER option. For example, to obtain the "lined" form, enter:

```
$ PRINT PROGRAM.FOR /HEADER /Q=3800 /PARAM=LINE
```

The /HEADER option places header lines on each page of the output containing the file specification, the date and time, and the page number.

To supply the A and/or B titles for your microfiche output, use the PARAMETER option:

```
$ PRINT filespec /Q=FICHE -
  /PARAMETER=("A-title text","B-title text")
```

For example, to print all the listing files in your current or default directory on microfiche with specific titles, enter:

```
$ PRINT *.LIS /Q=FICHE -
  /PARAM=("PRINT PROJECT","LISTINGS &DATE")
```

Note that the A and B title text strings are limited to 51 characters and that lowercase text is converted to uppercase text. This example shows the use of the substitution string "&DATE," which is substituted with the eight-character mm/dd/yy date by the printer. If you use the /JOB_COUNT parameter, the microfiche film will advance between each job and will reset the film counter (the number printed on the upper right side of each film) to 001.

When printing on the microfiche printer, you may also specify /SETUP=ADVANCE or /SETUP=RESET. ADVANCE causes the printer to begin a new film. RESET both starts a new film and resets the film counter to 001.

You can use other capabilities of the microfiche printer by embedding microfiche printer commands in text files and submitting them for printing at the appropriate position in your list of file specifications and by using the option /NOFLAG for that text file. For a discussion of the file records that you can compose to control the microfiche printer, see *Producing Microfiche Output at ANL* (TM 373), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

ANLEES VAX DECOMMISSIONED

The VAX-11/750 in the former EES Division that had Network Job Entry (NJE) and Digital Equipment Corporation network (DECnet) nodename ANLEES has been decommissioned.

Since mid-September 1990, many of the ANLEES users have established accounts on ANLCV1, the central VAX 8700. ANLEES users have placed their new electronic mail addresses in the online ANLPHONE database. If you send electronic mail to persons who used ANLEES, please use ANLPHONE to locate the new addresses. CTD has temporarily made the name ANLEES an alias for NJE nodename ANLCV1. After users have had a chance to update the ANLEES entries in their electronic mail nickname files, we plan to remove this alias on Tuesday, February 5, 1991. A few months ago, CTD asked the BITnet Network Information Center to remove the ANLEES nodename from the BITnet routing tables; BITnet users can no longer send electronic mail to nodename ANLEES.

BITS & BYTES

WYLBUR EXEC PRINTPS ENHANCED

CTD has enhanced the PRINTPS exec in Wylbur. Users can now place a default PostScript destination printer in their Bnnnnn.LIB dataset in member SETPS. (This situation is similar to the CMS **SETPS** command, which allows you to set a default PostScript destination.) If a user has no Bnnnnn.LIB dataset or if there is no member SETPS in Bnnnnn.LIB, then the default destination remains ANLOS.RADS13. The SETPS member should contain a destination of the form:

```
node.printer
```

where "node" can be some computer destinations (that is, ANLOS for IBM MVS, ANLCV1 for VAX 8700, and ANLVM for IBM CMS) and "printer" is the name of the local printer (that is, RM113PR2 for RADS13). The destination can be in mixed case and can have leading blanks; the exec will convert the destination to uppercase and remove any leading blanks.

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new or recently revised documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing and Telecommunications Documents

CMS at ANL (ANL/TM 423, REVISION 2) is an ANL supplement to IBM VM/SP technical documentation on VM/SP. In most instances it serves as the single repository for VM/SP policy and enhancements at Argonne National Laboratory. When appropriate, it points to material available in other documents; it does not ordinarily duplicate information available in vendor documentation or in other CTD technical memoranda. This revision supersedes the first revision of *CMS at ANL*.

Stores Standing Orders at ANL (ANL/TM 441, REVISION 1) is for the Inventory Planners and the Material Handlers within Materials and Services, for the Buyers in Procurement, and for the Voucher Payment Clerks within Accounts Payable, already trained in the Stock Tracker and the Automated Materials/Payables systems but not in Stores Standing Orders. The document limits itself to the procedures specific to Stores Standing Orders at ANL and to the computer software built for that subset of procurement functions. This document therefore supplements existing procedure and policy guides for the Stock Tracker and the Automated Materials/Payables systems. Chapter 1 defines a Stores Standing Order at ANL and summarizes briefly the steps to establish such an agreement, to purchase materials under the agreement, and to monitor the agreement through its lifetime. Chapters 2 through 10 then describe in detail each of the steps and provide instructions for performing specific tasks. Chapter 11 defines some differences between Stores Standing Orders and AMOS. This document supersedes the May 1986 printing.

IBM Documents

IBM Virtual Machine/System Product Release 6: CMS User's Guide (SC19-6210-05) contains general information and examples of the Conversational Monitor System (CMS) component of IBM VM/SP. This publication is for applications programmers who want to learn how to use CMS to create and modify datafiles (including VSAM datasets) and programs and to compile, test, and debug OS or DOS programs under CMS. The CMS Editor and CMS EXEC facilities are described with usage information and examples. Also included are brief descriptions of the System Product Editor and EXEC 2 facilities. This manual is for Release 6 of VM/SP. Currently, Release 5 is available at ANL. This edition supersedes *IBM Virtual Machine/System Product CMS User's Guide* (SC19-6210-04).

IBM Virtual Machine/System Product Release 6: System Product Interpreter Reference (SC24-5239-03) describes the Virtual Machine/System Product (VM/SP) System Product Interpreter and the Restructures EXtended eXecutor (REXX) language. Descriptions include the use and syntax of the language and explain how the language processor "interprets" the language as a program is executing. This book is designed for programmers, especially those who use a block structures high-level language (for example, PL/I, Algol, or Pascal). This manual is for Release 6 of VM/SP. Currently, Release 5 is available at ANL. This edition supersedes *IBM Virtual Machine/System Product* System Product Interpreter Reference (SC24-5239-02).

IBM VM/System Product Release 6: CMS Primer (SC24-5236-04) is a tutorial that introduces you to CMS on a full screen terminal. Novice users can easily and quickly learn how to function in CMS by working through the document and doing the exercises that are woven throughout the text. A CTD addendum provides information about local enhancements. This manual is for Release 6 of VM/SP. Currently, Release 5 is available at ANL. This edition supersedes *IBM VM/System Product: CMS Primer* (SC24-5236-03)

IBM 3084 Functional Characteristics (GA22-7088-4) describes the components and functions of the IBM 3084 Processor Complex base model (Q) and improved model (QX). Readers should be familiar with System/370 architecture and have knowledge of virtual-storage and virtual-machine concepts.

MVS/370 Data Administration: Utilities, Release 1.2 (GC26-4065-3) describes how to use the MVS/370 Data Facility Product utility programs to manipulate system and user data and datasets. Readers should be familiar with JCL, data management, and virtual storage management. This edition supersedes *MVS/370 Data Administration: Utilities* (GC26-4065-2).

MVS/370 JCL Reference (GC28-1350-3) lists the job control tasks needed to enter jobs into the operating system, control the system's processing of jobs, and request the resources needed to run jobs. To perform the tasks, programmers code job control statements. This publication describes how to code these statements that consist of job control language (JCL) statements, Job Entry Subsystem 2 (JES2) control statements, and Job Entry Subsystem 3 (JES3) control statements. This manual is a reference book for use while coding statements. This edition supersedes *MVS/370 JCL Reference* (GC28-1350-2).

SAS Documents

SAS Applications Guide, 1987 Edition (1-55544-032-0) is a collection of examples directly from SAS users. Each chapter deals with a common data-handling application. Rather than repeat details from the *SAS User's Guide*, the *SAS Applications Guide* discusses each problem in a general way, using a variety of examples. It illustrates how SAS can be applied to a number of non-statistical problems in data analysis (including how to prepare your data, how to work with SAS datasets, how to interpret SAS error messages, and how to prepare your results for presentation). This edition supersedes *SAS Applications Guide* (0-917382-16-1).

SAS Technical Report P-201 Changes and Enhancements to SAS Software for Personal Computers, Release 6.04 (1-55544-393-1) documents the upgrade to base SAS software and SAS/Graph software for personal computers in Release 6.04. This report should be used as a supplement to Release 6.03 documentation.

Other Vendor Documents

Microsoft Learning DOS (089-015V200) is an online course in a 5 1/4" floppy disk format that describes how to use Microsoft DOS for IBM Personal Computers and PC compatibles. *Microsoft Learning DOS* replaces the *Learning DOS* 5 1/4" diskette. (This entry was published incorrectly in the July 1990 *Newsletter.)*

Using MS-DOS Kermit (1-55558-048-3) describes the MS-DOS Kermit software for the IBM PC, PS/2, and compatibles. MS-DOS Kermit, a cable, and a modem connects your PC to networks, other computers, mainframes, etc. This book includes a 5.25 inch MS-DOS Kermit diskette. If you need a 3.5 inch diskette, you may order it by using the card at the back of this book.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD OCTOBER 2, 1990

Dotti Bingaman (Environmental Assessment and Information Sciences) opened the meeting at 3:05 p.m.

Computer Utilization Review. Ron Bare (Computing and Telecommunications) reported on the record income of about $880K (average income is about $600K) during September 1990, with an August 1990 income of about $780K. The Cray and VAX are the prime contributors to the increased income, which is an effect of the Floors system at the end of the fiscal year. The number of hours charged did not really change much from August to September 1990 (Cray running at full utilization), but the average priority has increased substantially as people try to get their jobs through a full system. There was greater use of Class W and Class U. There are more Central Processing Unit (CPU) hours being delivered than a year ago.

Because the IBM 3084 is faster, there has been a decline in CPU hours sold. There has also been a gradual decline in IBM interactive use since June 1990. CTD expected the IBM 3084 to be about 50 percent faster than the IBM 3033s, but recent timings indicate that it is about 74 to 80 percent faster. While the charged hours are lower, there is actually higher work usage on the faster machine; so there has been a real growth in productive work. The VAX is delivering about 40 percent more CPU usage than a year ago. Revenues have increased over the last three months. The million floating-point operations per second (Mflops) rating for the Cray has increased to the 30 to 40 Mflops range. There have been internal discussions on the use of the Fair Share Scheduler for the Cray. CTD is looking at what is available and how to use it if future usage requires its general implementation.

Proposed Rates for FY1991. Mike Boxberger (Computing and Telecommunications) reported on the Floors recovery effects for FY1990. Recovery would be about $800K short without the Floors. There is still some confusion about the conditions to be met before assessed Floors would be returned to the Associate Laboratory Directors (ALDs). The Chief Financial Officer and the Program Administration Coordinating Team (PACT) are discussing and working out this situation. The proposed rates for FY1991 were set so that full recovery would be achieved without Floors. (See "FY1991 Computing Rate Structure Rate Revised" in this *Newsletter.)* The utilization factors used for the major systems and their projected cost and recovery are:

Utilization	System	Cost(K$)	Recovery(K$)
60%	Cray	2,936	2,945
50%	IBM	2,975	2,965
42%	VAX	911	946

19.2 Kbps Modems Added to PBX Modem Pool. Bob McMahon (Computing and Telecommunications) reported that CTD has received 12 Telebit T2500 modems that should be operational on November 1, 1990. (See "PBX Modem Pool Enhancements" in this *Newsletter.)*

Review of Shutdown of Cray VAX Station. Barry Miller (Computing and Telecommunications) reported that CTD shut down the Cray front-end station on Monday, October 1, 1990. (See "VAX/VMS Front-End Station for the Cray Shut Down on October 1, 1990" in the October 1990 *Newsletter.)* Replacement tools have been available and stable since August 1990. CTD can make these tools available to Unix systems. Plans call for the installation of Network File System (NFS) client software on the VAX 8700, once a licensing agreement is reached.

Review of Cutover to Disspla 11.0. Mike Thommes (Computing and Telecommunications) reported that the cutover from Disspla 10.5 to 11.0 seems to have gone smoothly. Two users are still using Version 10.0. CTD has created a subroutine to allow users to change the unit designation that Disspla 11.0 wants. "CALL ANLD44(n)" will change Unit 44 to the unit number given by "n." (See "CA-Disspla 11.0 Goes Production in CMS and MVS, CA-Disspla 10.5 Becomes "Old," and CA-Disspla 10.0 Goes Away" in the September 1990 *Newsletter.)* Some users commented that they were still having trouble getting Version 11.0 to work. CTD is looking into the problem.

New Maintenance Level of CMS Installed. Ray Carlson (Computing and Telecommunications) reported that CTD upgraded CMS to maintenance level 522. (See "Plans To Upgrade CMS to Level 522" in the September 1990 *Newsletter.)* There have been minor difficulties encountered. With the new release, the **INQUIRE** command does not like external files.

The CUG meeting adjourned at 4:16 p.m.

Ken Miles, CUG Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD OCTOBER 24, 1990

Bob Kampwirth (Materials Science) opened the meeting at 11:00 a.m. The meeting announcement was sent out by using QuickMail or Email, when possible, and with paper for those who do not have electronic mail capabilities. If you have an electronic mail address and are not receiving an electronic meeting announcement, contact Lee Wagar at extension 2-5603.

Bob Hablutzel (a technical specialist from Apple Computer) discussed "Programming on the Macintosh." As a programmer, Bob was able to give an exceptionally clear overview of programming on the Apple Macintosh. Programming on an Apple Macintosh computer is easier than programming on a mainframe computer, if the program being written uses a command line interface like those typically found in programs written for a mainframe computer. All the main programming languages are available (for example, Fortran, Basic, C, Pascal, and Assembly). If one wants to add the Apple Macintosh features (such as windows and menu bars), then programming becomes more difficult, and "one should expect spending several months to become proficient." However, with programs like the Macintosh Programmer's Workshop (MPW) and MacApp, this difficulty is minimized, especially after the first application is written. If the application is only to be used once, Bob recommended writing it on the Apple Macintosh with a command line interface.

MPW is a professional environment for Apple Macintosh computer application development. It allows multiple users to work on the same program with strict revision control. It has compilers for C, Pascal (an object-oriented Pascal), Assembly, Fortran, C++ (an object-oriented C language), and others. MacApp provides an object-oriented environment that allows a piece of code (that is, an object, once written, to be used over and over again). "MPW costs $150, MacApp sells for $275, and the various languages are available for $150 to $250 each. The whole Apple programming environment (including MPW, MacApp, Inside Macintosh, source code, and programming notes) is available as a CD ROM for a $1,000 per year subscription (including quarterly updates). All of these items can be purchased from the Apple Programmers and Developers Association (APDA), Apple Computer, 20525 Mariani Avenue, M/S 33-G, Cupertino, California 95014. To purchase from APDA requires an annual membership fee of about $25."

Bob Hablutzel could not recommend Microsoft Basic for the Apple Macintosh computer, because he does not see it being updated the way it should be. He recommended Think C, Think Pascal, and even HyperCard as good programming environments for single-programmer development. Think C and Think Pascal have built-in debuggers, are faster to compile than MPW, and can be transferred to MPW (if necessary) at a later date.

Comments about programming from the members present were as follows: Compiled QuickBASIC can be faster than Fortran. QuickBASIC is easy to use and can be made modular for ease of code reuse. Of the two main Fortran 77 languages available for the Apple Macintosh--Absoft MacFortran and Language Systems Fortran--the Language Systems Fortran seems to be better (based on user experience). One user moved a 5,000 line program from the Cray to the Apple Macintosh with no difficulties. However, it did run a little slower.

In future months, the Apple Macintosh Users Group meeting will include a demonstration of the new Apple Macintosh computers, a look at HyperCard 2.0, Dreams and MacDraft 2.1, and Scientist Workbench (when it is released).

The Apple Macintosh Users Group normally meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

The meeting adjourned at 12:05 p.m.

Ralph Leonard, Macintosh Users Group Secretary

WORKLOAD STATISTICS (AUGUST 31 THROUGH SEPTEMBER 30, 1990)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,261	1,247	449
Wylbur	1,711	1,698	339
MVS TSO	57	63	8
CICS	2,268	2,258	135
MVS Batch	2,268	2,258	694
VAX/VMS	634	627	336
Cray	352	347	127
All Systems	2,268	2,258	995

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION	CPU
	PRIME	NIGHT	WEEKEND	TOTAL	TIME (HRS)	TIME (HRS)
INTERACTIVE						
CMS	10,856	2,544	2,222	15,622	39,657.5	70.93
Wylbur	6,791	243	357	7,391	7,446.5	5.84
MVS TSO	209	0	3	212	276.2	0.46
CICS	n.a.	n.a.	n.a.	n.a.	n.a.	4.61
VAX/VMS	13,373	1,655	2,371	17,399	23,872.9	245.26
Cray	2,082	215	200	2,497	1,499.6	25.76
IBM BATCH						
Class U	8,681	1,665	1,564	11,910	n.a.	20.31
Class W	15,537	1,719	820	18,076	n.a.	97.16
Class X	6	546	25	577	n.a.	68.88
Class Y	0	0	1,578	1,578	n.a.	33.33
Nonmain	14,524	1,882	1,854	18,260	n.a.	0.00
Total	38,748	5,812	5,841	50,401	n.a.	219.68
CRAY BATCH						
u	2,082	215	200	2,497	n.a.	81.60
w	1,414	534	289	2,237	n.a.	377.87
x	10	78	170	258	n.a.	101.54
y	1,478	552	673	4,992	n.a.	44.56
Total	4,984	1,378	1,332	9,984	n.a.	605.57
VMS BATCH						
W BATCH	891	260	158	1,309	n.a.	78.74
X_BATCH	14	46	28	88	n.a.	212.04
Y_BATCH	2	0	22	24	n.a.	43.09
Total	907	253	208	1,421	n.a.	333.87

INPUT/OUTPUT

Lines Printed	
Local	70,008,436
Remote	50,293,830
Fiche	38,162,598
Cards Punched-Local Only	21,865
Tape Mounts	6,654
Microfiche Developed	4,367
Microfiche Frames Developed	852,127

GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	106	n.a.
Matrix 35mm Color	43	149
Matrix-8 x 10	0	0
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	3	24
35mm Black/White/Sprocketed	4	1,778
35mm Color	0	0
16mm Black/White/Sprocketed	4	3,460
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	25,101
New Tapes Saved	252
Tapes Released	318
Datasets Exported to Tape	1,333
Datasets Imported from Tape	680

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (AUGUST 31 THROUGH SEPTEMBER 30, 1990)

	Monthly Totals		Scheduled			Unscheduled	
		Hardware	Software	Other	Hardware	Software	Other
			CMS				
All Shifts							
Interruptions	6.00	1.00	4.00			1.00	
Hrs Unavailable	3.13	0.73	1.78			0.61	
MTF/Unscheduled	740.86					740.86	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable							
MTF/Unscheduled							
			WYLBUR				
All Shifts							
Interruptions	8.00	1.00	6.00		1.00		
Hrs Unavailable	5.60	0.88	3.58		1.13		
MTF/Unscheduled	738.40				738.40		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable							
MTF/Unscheduled							
			MVS TSO				
All Shifts							
Interruptions	8.00	1.00	6.00		1.00		
Hrs Unavailable	5.61	0.88	3.60		1.13		
MTF/Unscheduled	738.38				738.38		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable							
MTF/Unscheduled							
			JES3				
All Shifts							
Interruptions	8.00	1.00	6.00		1.00		
Hrs Unavailable	5.00	0.85	3.20		0.95		
MTF/Unscheduled	739.00				739.00		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable							
MTF/Unscheduled							
			CICS				
All Shifts							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable							
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable							
MTF/Unscheduled							
			VAX/VMS (VAX 8700)				
All Shifts							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable							
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable							
MTF/Unscheduled							
			CRAY				
All Shifts							
Interruptions	5.00	3.00	1.00		1.00		
Hrs Unavailable	16.53	9.45	1.00		6.08		
MTF/Unscheduled	727.46				727.46		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable							
MTF/Unscheduled							

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (AUGUST 31 THROUGH SEPTEMBER 30, 1990)

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
	ADVANCED PHOTON SOURCE						
130	ADVANCED PHOTON SOURCE DIV	$177	$467	$0	$578	$332	$1,555
272	ADVANCED PHOTON SOURCE	$105	$0	$0	$27	$43	$175
340	APS DIVISION MANAGEMENT	$20	$0	$0	$0	$39	$59
341	APS ACCELERATOR PHYSICS	$341	$5,142	$543	$552	$115	$6,693
342	APS DIAGNOSTICS	$0	$0	$1	$0	$0	$1
343	APS LINAC	$0	$352	$0	$5	$0	$358
344	APS RF	$4	$0	$0	$0	$0	$4
345	APS VACUUM	$9	$1,679	$0	$132	$182	$2,003
347	APS CONTROLS	$63	$2	$0	$0	$5	$70
348	APS MAGNETS	$89	$110	$0	$0	$1	$199
349	APS POWER SUPPLIES	$40	$0	$0	$0	$0	$41
350	APS DIVISION MANAGEMENT	$13	$0	$0	$0	$7	$20
351	APS INSERTION DEVICES	$763	$777	$0	$309	$12	$1,861
352	APS BEAM LINE FRONT ENDS	$45	$24	$0	$16	$306	$391
353	APS BEAM LINE INSTRUMENTATION	$21	$0	$0	$0	$0	$21
360	APS CONVENTIONAL FACILITIES	$8	$1	$0	$0	$0	$9
361	APS PROJECT DIRECTION	$95	$192	$0	$5	$77	$369
362	APS MANAGEMENT GENERAL	$41	$0	$0	$0	$19	$59
SUBTOTAL		$1,834	$8,746	$544	$1,626	$1,138	$13,888
	ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	BIO & MED RES DIV	$1,856	$2,723	$254	$1,054	$858	$6,747
125	TECHNOLOGY TRANSFER CENTER	$97	$0	$0	$5	$110	$213
149	ENVIROMMENTAL RESEARCH DIV	$3,000	$225	$1,350	$872	$729	$6,176
155	ENERGY SYSTEMS DIVISION	$12,895	$7,495	$27,975	$2,153	$1,326	$51,843
165	ENV ASSESS & INFO SCI DIV	$7,764	$23,266	$154,320	$3,090	$5,058	$193,498
174	ENER/ENV/BIO PROG DIR	$15	$0	$0	$0	$100	$115
246	ES-NAT'L ENERGY SOFTWARE CTR	$155	$0	$0	$673	$523	$1,351
274	ENER/ENV/BIO RES PROG ADM	$82	$0	$0	$1	$169	$252
SUBTOTAL		$25,865	$33,710	$183,900	$7,847	$8,874	$260,195
	ENGINEERING RESEARCH						
102	EBR-II PROJECT-ANL WEST	$2,747	$46	$98	$2,096	$160	$5,147
107	CHEMICAL TECHNOLOGY DIVISION	$593	$251	$1	$1,020	$1,171	$3,036
112	REACTOR ANAL & SAFETY	$14,156	$788	$21,329	$5,583	$2,574	$44,431
114	MATLS & COMP TECH DIV	$6,767	$5,813	$171	$2,939	$2,128	$17,818
115	ENGINEERING PHYSICS DIVISION	$39,354	$13,406	$118,633	$14,209	$11,546	$197,147
117	APPLIED PHYSICS-ANL WEST	$2,661	$8	$8,827	$200	$354	$12,050
118	REACTOR EXP & EXAM DIV	$4,452	$544	$5	$141	$213	$5,355
119	ANALYTICAL LABORATORY ANL-WES	$0	$0	$0	$0	$100	$101
171	ENGRG RES PROG DIR	$4	$0	$0	$0	$105	$109
197	SPECIAL PROJECTS OFFICE	$569	$0	$0	$9	$167	$746
211	ENGINEERING PHYSICS DIVISION	$122	$16	$0	$47	$2,894	$3,079
269	CHEM TECH DIV-ANALYTICAL CHEM	$85	$0	$0	$6	$109	$200
271	ENGRG RES PROG ADMIN	$268	$0	$0	$12	$278	$559
SUBTOTAL		$71,780	$20,873	$149,063	$26,262	$21,800	$289,779
	PHYSICAL RESEARCH						
105	MATERIALS SCIENCE DIVISION	$1,609	$9,740	$2,986	$1,741	$69	$16,143
109	PHYSICS DIV	$2,399	$994	$35	$1,488	$994	$5,910
120	CHEMISTRY DIV	$1,504	$15,929	$65,316	$1,036	$518	$84,302
136	INT PULSE NEUT SOURCE PROG	$144	$723	$2,945	$284	$195	$4,291
137	HIGH ENERGY PHYSICS DIV	$1,974	$2,142	$3,535	$956	$955	$9,562
139	DIV OF EDUCATIONAL PROGRAMS	$574	$0	$0	$76	$439	$1,088
145	MATHEMATICS & COMPUTER SCI DI	$267	$44	$583	$3.384	$4,402	$8,680
146	CTD DIV - SCI APPL & RES	$30	$1	$0	$97	$1	$129
273	PHYSICAL RESEARCH PROGRAM ADM	$63	$0	$0	$18	$137	$218
SUBTOTAL		$8,564	$29,572	$75,400	$9,078	$7,710	$130,324
	EXTERNAL						
751	FERMI NATIONAL LABORATORY	$854	$0	$0	$460	$405	$1,719
752	NAVY	$12,135	$0	$0	$1,394	$6,188	$19,717
753	MORGANTOWN ENERGY TECH CENTER	$17	$0	$0	$650	$0	$667
754	DEPARTMENT OF ENERGY AT ANL	$0	$0	$0	$0	$0	$0
756	LOS ALMOS	$25	$0	$0	$0	$0	$25
760	ABBOTT LABORATORIES	$13	$0	$161	$0	$0	$173
763	GENERAL ELECTRIC COMPANY	$0	$1	$0	$0	$0	$1
765	WESTINGHOUSE HANFORD COMPANY	$0	$2	$4	$0	$0	$6
766	BECHTEL NATIONAL, INC.	$0	$76	$307	$4	$1	$388
771	PURDUE UNIVERSITY	$4	$0	$0	$0	$0	$4
775	SMITHSONIAN	$0	$0	$0	$0	$3	$3
777	UNIVERSITY OF CHICAGO AT ANL	$28	$0	$0	$126	$0	$154
778	ARGONNE CREDIT UNION	$8	$0	$0	$0	$0	$8
779	UNIVERSITY OF ILLINOIS AT CHI	$8	$0	$0	$0	$0	$8
780	NEW BRUNSWICK LABORATORY	$31	$0	$0	$5	$47	$84
781	STATE OF ILL. DEPT. MENTAL HE	$0	$0	$0	$0	$7	$7
782	PACKER ENGINEERING	$4	$25	$1	$0	$0	$31
783	WEST VALLEY NUCLEAR SERVICES	$11	$0	$0	$0	$0	$11
784	SUPERCONDUCTING SUPER COLLIDER LAB	$8	$3,594	$696	$234	$1,588	$6,121
SUBTOTAL		$13,149	$3,698	$1,169	$2,874	$8,238	$29,128

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
			OPERATIONS				
143	SUPP SERV DIV - ELEC DEPT	$105	$14	$0	$221	$234	$574
148	HUMAN RESOURCES-MEDICAL DEPT	$1,054	$0	$0	$90	$385	$1,529
150	SUPPORT SERV DIV - SPEC MATLS	$238	$0	$0	$34	$139	$411
161	TECH INFO SERVICES DEPT	$1,508	$9,713	$0	$2,515	$2,062	$15,798
201	OFFICE OF THE DIRECTOR	$513	$0	$0	$144	$139	$796
202	OFC OF CHIEF OPER OFCR	$30	$0	$0	$70	$101	$201
210	SUPP SERV DIV - CENT SHOPS	$292	$0	$0	$52	$164	$508
216	SUPPORT SERVICES DIVISION	$147	$0	$0	$47	$134	$328
222	PLANT FAC & SERV-LODGING FAC	$0	$0	$0	$0	$100	$100
232	SUPPORT SERV DIV - SECURITY	$356	$0	$0	$0	$144	$500
234	SUPP SERV DIV-HEALTH PHY	$199	$3	$0	$16	$304	$521
235	SUPP SERV DIV-ENV SAFE HEALTH	$950	$0	$0	$70	$320	$1,341
236	SUPPORT SERV DIV - FIRE DEPT	$6	$0	$0	$0	$101	$107
245	COMPUTING AND TELECOM DIV	$18,769	$0	$0	$3,615	$2,402	$24,786
247	COMP & TEL DIV - COM SERV	$1,666	$0	$0	$267	$1,108	$3,040
260	SUPP SERV DIV-GRAPHIC ARTS	$331	$165	$0	$97	$124	$717
275	OFFICE OF PUBLIC AFFAIRS	$813	$0	$0	$67	$175	$1,055
276	OFC PUB AF - MOTN PIC UNIT	$56	$0	$0	$1	$11	$67
296	TELECOM COST/RECOVERY	$0	$0	$0	$285	$0	$285
315	SUPP SERV DIV-MATLS & SERV	$3,421	$0	$0	$4,198	$413	$8,032
316	PLANT FAC & SERV-VEH MAINT	$0	$0	$0	$0	$159	$159
317	PLANT FAC & SERV-DRIV&RIG SER	$13	$0	$0	$5	$100	$117
319	SUPP SERV DIV-TRAVEL OFC	$5	$0	$0	$148	$100	$253
322	SUPP SERV DIV-PROCUREMENT	$50	$0	$0	$0	$103	$153
333	QA, ENVIR & SAFETY OFC	$71	$1	$0	$13	$168	$253
336	SUPP SERV DIV - INSPECTION	$12	$0	$0	$0	$2	$14
400	OFC OF CHIEF FIN OFFICER	$50,936	$0	$0	$4,782	$14,109	$69,827
401	ACCOUNTING	$0	$0	$0	$80	$100	$180
402	OFC CHIEF FIN OFCR-DATA ENTRY	$13	$0	$0	$125	$0	$138
403	BUDGET OFFICE	$50	$0	$0	$0	$228	$278
410	HUMAN RESOURCES DEPARTMENT	$10,379	$0	$0	$3,980	$1,540	$15,899
412	AFFIRM ACTION PROGRAM	$79	$0	$0	$36	$100	$216
501	PLANT FAC & SERV-BLDG MAINT	$55	$0	$0	$65	$944	$1,064
502	PLANT FAC & SERV-INSTALLATION	$15	$0	$0	$4	$100	$119
503	PLANT FAC & SERV-GROUNDS	$0	$0	$0	$0	$100	$100
504	PLANT FAC & SERV-CUSTODIAL	$11	$0	$0	$5	$100	$116
505	PLANT FAC & SERV-WASTE MGMT O	$66	$0	$0	$45	$100	$211
506	PLANT FAC & SERV-PLANT MGR OF	$738	$0	$0	$14	$478	$1,230
510	PLANT FAC & SERV-UTILITY SYST	$0	$0	$0	$0	$100	$100
512	PLANT FAC & SERV-FAC PLNG/ENG	$548	$0	$0	$16	$166	$730
530	SITE MGRS OFC-ANL WEST	$34	$0	$0	$1	$101	$136
531	PERSONNEL-ANL WEST	$202	$0	$0	$164	$100	$466
532	SPECIAL MATLS-ANL WEST	$818	$0	$0	$135	$237	$1,190
533	ACCOUNTING-ANL WEST	$0	$0	$0	$0	$100	$100
534	PURCHASING-ANL WEST	$0	$0	$0	$0	$100	$100
535	SECURITY - ANL WEST	$0	$0	$0	$0	$100	$100
536	SAFETY STAFF-ANL WEST	$184	$0	$0	$0	$102	$286
537	INFORMATION SERVICE-ANL WEST	$0	$0	$0	$0	$100	$100
538	MATLS HANDLING-ANL WEST	$125	$0	$0	$12	$100	$237
548	ANL WEST GENERAL EXPENSE	$108	$0	$0	$54	$1	$163
550	COMPUTER APPL & SERV - ANL-W	$118	$4	$0	$16	$218	$355
551	RAD MONITORING-ANL WEST	$0	$0	$0	$0	$100	$100
554	MACHINE SHOP-ANL WEST	$29	$0	$0	$4	$100	$133
556	SITE ENGRG-ANL WEST	$94	$0	$0	$20	$100	$214
557	PLANT SERVICES-AW-SERVICE REQ	$120	$5	$0	$12	$100	$238
558	PLANT SERVICES-AW-FUNCTION	$4	$0	$0	$0	$0	$4
559	FOOD SERVICES - ANL WEST	$0	$0	$0	$0	$100	$100
561	OFC OF QUALITY ASSURANCE - AW	$4	$0	$0	$0	$101	$105
563	TALENT RESOURCE POOL-ANL WEST	$0	$0	$0	$0	$100	$100
SUBTOTAL		$95,330	$9,907	$0	$21,525	$29,316	$156,078
TOTAL		$216,522	$106,506	$410,076	$69,213	$77,075	$879,392

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	**Onsite (Illinois)**	**Onsite (Idaho)**	**Offsite (Area Code 708)**
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter			
1200 to 19.2K Bits Per Second (Onsite)	2-3270	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-3270
9600 to 19.2K Bits Per Second (Offsite)			972-3219
X.25 Terminal Multiplexor			
300 to 19.2K Bits Per Second(Onsite)	2-2525	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-2525
9600 to 19.2K Bits Per Second (Offsite)			972-2519
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*

* When using a 300 bits per second modem, you must use a capital "P" to logon.

Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700			
1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-8700
9600 to 19.2K Bits Per Second (Offsite)			972-8745
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-5588
9600 to 19.2K Bits Per Second (Offsite)			972-4726 (97C-ISCO)
Argonne MFEnet Dial-Up			
300 to 19.2K Bits Per Second	2-7920	n.a.	972-7920

Tymnet Commercial Packet-Switching Network
Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	**VM/SP**	**VMS**	**MFEnet Gateway**
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.

LIBRARY U. OF I. URBANA-CHAMPAIGN

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Argonne National Laboratory
Computing and Telecommunications Division
November and December 1990

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering five classes. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

USING SAS

Goals:	To develop familiarity with the Statistical Analysis System (SAS), to become familiar with its flexible input mechanisms (which are capable of reading virtually any format of data and easily permit selection of data), to learn to use some basic reporting features, and to become aware of the capabilities made possible by a variety of SAS procedures.
Prerequisite:	Some knowledge of CMS, MVS, VAX/VMS, or an IBM PC
Length of Class:	Two 3-hour sessions
Dates and Time:	November 1 and 6, 1990 (Thursday and Tuesday), 9:00 a.m. to noon
Location:	Building 221, Room A-261
Suggested Reading:	*SAS Introductory Guide*
Instructor:	Mike Thommes

USING NCSA IMAGETOOL FOR DESKTOP SCIENTIFIC VISUALIZATION

Goals:	To see what visualization capabilities the NCSA Imagetool program can provide. To learn how to create Fortran or C programs to convert your data into the form Imagetool accepts.
Prerequisite:	Working knowledge of C or Fortran
Length of Class:	One 3-hour session
Date and Time:	November 14, 1990 (Wednesday), 9:00 a.m. to noon
Location:	Building 221, Room A-261
Suggested Reading:	*NCSA Image for the Color Macintosh Version 2.0*
Instructor:	Dave Lifka

CRAY X-MP ARCHITECTURE AND VECTORIZATION TECHNIQUES

Goals:	To learn to optimize Fortran programs on the Cray X-MP/14 high-performance computer. Topics include Cray X-MP architecture, vectorization, and optimization.
Length of Class:	Two 3-hour sessions
Dates and Time:	November 14 and 16, 1990 (Wednesday and Friday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Instructors:	Tom Canfield Pete Bertoncini

INTRODUCING THE NEW SAS VERSION 6.06

Goals:	To become familiar with SAS Version 6.06 enhancements.
Prerequisite:	Some knowledge of SAS
Length of Class:	One 2-hour session
Length of Lab:	One 1-hour session
Date and Time:	November 15, 1990 (Thursday), 9:00 a.m. to noon
Location:	Building 221, Room A-261
Suggested Reading:	*SAS Technical Report P-204/SAS Software: Changes and Enhancements, Release 6.06* (1-55544-409-1)
Instructor:	Mike Thommes

INTRODUCTION TO UNIX

Goals:	To learn the basic concepts required for using Unix computer systems. This class will be a general overview of Unix commands, editing, and file systems and will demonstrate topics from logging on to creating, compiling, and executing a program.
Length of Class:	Two 3-hour sessions
Dates and Time:	December 4, and 5, 1990 (Tuesday and Wednesday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Suggested Reading:	*A Practical Guide to the Unix System* (0-8053-0243-3)
Instructor:	Dave Leibfritz

COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH	Introduction and Advanced Concepts of Xedit

DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	**Course Title**
VMSCAI	Introduction to VAX/VMS
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

Argonne National Laboratory
Computing and Telecommunications Division Rates
Revised October 15, 1990

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne National Laboratory's scientific and technical programs and administrative activities.

Scientific Applications and Research:

- Performs research and development in advanced scientific computing and telecommunications technologies.
- Performs applications research in supercomputing, networking, scientific visualization, parallel processing, and other areas of computer science.
- Participates in developing Laboratory initiatives and technology transfer programs in scientific computing.

Management Information Systems:

- Provides leadership in optimizing computing and information services.
- Works with divisions, departments, programs, user groups, and Laboratory management to define needs and priorities.
- Coordinates the development of and provides assistance for the business-related computing requirements of the Laboratory.
- Provides leadership in the selection and integration of administrative computing systems.

Computing and Telecommunications Operations:

- Manages the Laboratory's central computing production systems.
- Manages the Laboratory's voice and data communications systems.
- Coordinates the development of and provides assistance for an integrated hierarchy of computing systems.
  - Provides guidance in the use of supercomputers and large-scale central computers.
  - Provides resources, technical guidance, and other assistance for distributed minicomputers, scientific and engineering workstations, and personal computers.
- Provides leadership in disseminating computer-related technologies throughout the Laboratory.

Additionally, CTD has Laboratory-wide responsibility to:

- Work with all segments of the Laboratory to determine requirements and priorities for computing and telecommunications needs.
- Develop plans, prepare recommendations, and implement computing policy for the Computing Policy Committee.
- Provide leadership in research, development, and implementation of computing technologies.

(10/29/90, AAH)

GENERAL INFORMATION

Eligible users. The computing and telecommunications services provided at Argonne National Laboratory are generally available to all members of the Laboratory; DOE and other U.S. Government agencies are served by arrangement. In addition, other not-for-profit organizations may apply for permission to use these computing services. Commercial firms are generally not eligible to use Argonne National Laboratory computing services.

Shift differentials. The week is divided into three shifts. Applicable shift differentials for job charges are based on the time an interactive session starts or a batch job begins execution; and rates are reduced outside prime shift to reflect the lower desirability, lighter load, and reduced operations staffing off prime shift and during holiday periods. The three shifts are defined as follows:

Prime	Monday through Friday, 7:00 a.m. to 7:00 p.m.
Overnight	Monday through Friday, 7:00 p.m. to 7:00 a.m. the following morning.
Weekend	Saturday 7:00 a.m. to Monday 7:00 a.m. and Holidays.

Periods may be preempted for maintenance, housekeeping, and systems time, especially during the overnight and weekend shifts; unavailability is announced when possible the afternoon before scheduled periods of unavailability.

Service premiums and discounts. Some of the charges for batch computing services listed here include service premiums and discounts (that is, MVS batch and VMS batch). During each shift, at least two levels of service are available: (1) an expedited service and (2) a regular service. Users select the level of service they require and indicate their requests by specifying CLASS= on MVS JOB cards or the appropriate batch queue on the **SUBMIT** command in VAX/VMS. We measure service as the delay between the time the job is submitted and the time it begins execution. The computer operating system and computer operators schedule jobs to satisfy users' requests for service. In MVS and VMS, charges may be reduced if the service requested is not provided.

Special arrangement jobs. Special arrangements are necessary to schedule the running of jobs that exceed established scheduling limits for time and/or memory resource allocations or that need special operator attention to schedule for other reasons. Users with these special jobs need to call Users Services. User Services will determine if the jobs can be processed with special arrangements or not. User Services will then arrange with Computer Operations for scheduling approved special jobs.

Surcharge to non-ANL users. Outside users with computer accounts funded by DOE but not by ANL incur a surcharge of approximately 25 percent. The surcharge for DOE-affiliated users outside the Laboratory is analogous to the overhead charge incurred by programmatic divisions for Laboratory general administrative expense. Outside computer users not affiliated with DOE incur a nonadditive combination of surcharges for Laboratory general administrative expense, Laboratory general depreciation, depreciation of computing equipment, and DOE administrative expense. Such outside users with computer accounts funded neither by DOE nor by ANL incur accumulated surcharges of approximately 60 percent.

Limited availability. Some of the computing services listed here are available in limited quantities or to only certain users, either for technical or policy reasons. For example, online disk storage and telecommunications ports are limited to available hardware, and MVS TSO enrollment is limited. Users should consult with CTD before making plans or commitments that require specific services or resources.

Refund policy. A computer user is entitled to a refund of charges for resource usage that occurred as a result of hardware failure, system software failure, error on the part of the CTD staff, or similar circumstances beyond the user's control. The refund will not cover the parts of the job that can reasonably be skipped or suppressed in the rerun. Refunds of less than $50 are not processed. Regardless of the cause of the failure, *no more than 15 minutes worth of CPU time will be refunded for a batch job*; users with programs that require more than 15 minutes for computation should save intermediate results at least every 15 minutes for recovery purposes in case of failure. Users are responsible for backing up their own datasets; refunds will not be given for the cost of recreating lost or damaged datasets. Refunds are also not provided for I/O errors on personal tape reels. To apply for a refund, fill out a "Computer Refund Request" form (available from the Consulting Office) and send it with adequate supporting evidence to the Consulting Office. Your request will be reviewed; and, if a refund is due, it will be applied to your account.

COMPUTER MANUALS

Users may purchase computer manuals at the Document Distribution Counter in Building 221, Room A-134, or may order manuals by calling extension 2-5405. Please consult *Recommended Documentation for Computer Users at ANL* (ANL/TM 379), for information on our policies, procedures, and recommendations. The charge for computer manuals is based on their direct cost plus an amount for ordering, inventory, and handling costs. In general, CTD does not stock documents that cost $80.00 or more and will order them only upon request.

INTERACTIVE SERVICES

Cray UNICOS (Cray X-MP/14). Cray Research's UNICOS system provides interactive Unix services primarily for those users requiring access to the Cray interactive debugger or doing interactive graphics. Access to interactive UNICOS is through the TCP/IP network.

DEC VMS (VAX 8700 Cluster). The Digital Equipment Corporation VMS system is an easy-to-use environment for interactive programming and screen-oriented applications. The VAX 8700 has a range of modern programming tools, scientific libraries, and database systems oriented to (but not limited to) scientific and engineering applications and provides Cray interactive access and tools for running Cray batch jobs.

IBM VM/SP CMS (IBM 3084). VM/SP is an efficient, easy-to-learn interactive system for executing programs. It has a separate file system; but it has a link to submit jobs to, and retrieve output from, the batch systems. Many useful applications programs, compilers, and utilities can be used interactively in VM/SP; and batch programs can be developed in VM/SP and then installed for production in MVS batch without change.

OBS Wylbur (IBM 3084). Wylbur is an efficient, easy-to-learn interactive system for editing files and managing MVS batch jobs. It shares access to most disks used by MVS batch jobs; and it submits jobs to, and retrieves output from, the MVS batch system. Users may write and use powerful exec programs in Wylbur to perform frequent or repetitive series of commands, but Wylbur does not execute other programs (such as Fortran or user applications). Wylbur charges are predominated by session time and include very little CPU time for typical user work; the CPU time rates are set to compensate for Wylbur's underreporting of the user's CPU use.

IBM CICS/VS (IBM 3084). IBM's Customer Information Control System (CICS) is a general-purpose database and data-communication processing system that provides several of Argonne's administrative computing applications. The Laboratory's Personnel and Payroll Systems, the Medical System, and the Argonne Materials Ordering System (AMOS) are presently using CICS for online inquiry and updating of information contained in their application databases. User access to these CICS application software packages is authorized on an application-by-application basis.

IBM MVS TSO (IBM 3084). MVS TSO is intended only for users whose applications require it. TSO consumes more resources than VM/SP or Wylbur with batch for performing comparable tasks; our capacity plan for allocating computing resources requires restricting TSO usage in favor of VM/SP and Wylbur services, because they make more effective use of computer resources. Therefore, MVS TSO enrollment is limited; it is not automatic as with VM/SP, Wylbur, or batch, but is subject to approval by CTD management. MVS TSO has been installed essentially without local modifications; most applications packages and language processors are not available in MVS TSO, and we do not plan to offer TSO introductory courses and consulting services. Users may apply for MVS TSO authorization by completing a brief MVS TSO enrollment form available from Account Services (Building 221, Room A-147).

BATCH SERVICES

Cray UNICOS. The Cray Research, Inc. UNICOS operating system is derived from the AT&T Unix System V operating system with Berkeley Unix enhancements and includes the Network Queuing System (NQS) for managing batch jobs. The job CPU time estimate is limited to one hour during the day shift and three hours during the other shifts. You may submit batch jobs to one of the UNICOS batch job queues mentioned below.

You control the scheduling and charging of an NQS batch job by placing it into one of the four priority-based batch queues. In decreasing order of NQS job selection priority, UNICOS job dispatching priority, and resource charging rate, these queues are designated by the single lowercase characters: **u**, **w**, **x**, and **y**.

Regardless of queue, jobs requesting more than one hour of CPU time will not run during the prime shift, unless the UNICOS system is unusually lightly loaded; jobs in all queues that require no more than one hour of CPU time will be eligible to run anytime. However, during the prime shift when a backlog of higher priority (**u** and **w**) jobs develops, the UNICOS operators may stop scheduling **x** and **y** jobs and may suspend **x** and **y** jobs that have already started but not completed. The operators will restart suspended jobs and resume scheduling **x** and **y** jobs when the backlog diminishes or prime shift ends.

DEC VMS. The Digital Equipment Corporation VMS system batch services are entirely compatible with VMS interactive applications that do not require terminal input. The batch service classes (W, X, and Y) are obtained by submitting jobs to the following queues with the **SUBMIT** command:

VAX 8700 QUEUES

> *W_BATCH.* The W_BATCH queues provide regular batch service at any time of day. The SHORT_W_BATCH queue is the default queue if none is specified. The SHORT_W_BATCH queue has a maximum time limit of five minutes. The W_BATCH queue has a maximum time limit of one hour.
>
> *X_BATCH.* The X_BATCH queues are for jobs that you wish to defer until the overnight shift. They provide overnight service if jobs are submitted by 5:00 p.m. Monday through Friday. The X_BATCH queue has a maximum time limit of one hour. The SPECIAL_X_BATCH queue is for jobs that need resources that exceed normal limits of CPU time and memory. At our discretion, we may start X_BATCH queue jobs during the prime shift.
>
> *Y_BATCH.* The Y_BATCH queues provide processing with lower charges than the X_BATCH queues; batch jobs in these queues will normally run overnight or weekends (if resources are available), when the job will have little impact on other processing. The Y_BATCH queue has a maximum time limit of one hour. The SPECIAL_Y_BATCH queue is for jobs that need resources that exceed normal limits of CPU time and memory. There are no guarantees when Y_BATCH jobs will run.

Computing rates charged are determined by the shift in effect when the job starts. The operators will suspend jobs executing in the X_BATCH and Y_BATCH queues during the prime shift. The operators will restart suspended jobs and resume scheduling X_BATCH and Y_BATCH jobs when the backlog diminishes or prime shift ends.

IBM MVS SP (IBM 3084). We offer four classes of MVS batch service that are detailed below. Batch job classes enable users to choose between expedited and regular service; they also permit users to defer execution of batch jobs to shifts with lower rates. Table 1 shows the class of service and shift multipliers that result from the combination of shift differentials and service premiums and discounts selected by the user.

Class U Expedited Batch. Class U provides expedited batch service within a few minutes anytime of day, comparable to response from interactive systems.

Class W Regular Batch. Class W provides regular batch service within a few hours anytime of day. This class is the default.

Class X Deferred Overnight Batch. Class X requests that job execution normally be deferred until the overnight shift. It provides assured overnight service if submitted by 5:00 p.m. Monday through Friday but is not eligible to run during prime shift. At our discretion during the day, we may release Class X jobs.

Class Y Deferred Weekend Batch. Class Y provides lower charges than Class X; batch jobs in this class will normally run only on weekends, when the jobs will have negligible impact on other jobs. We make no estimates or guarantees about when they will run.

Central Processing Charging Algorithm

$$SS * [(CPU * R_1) + (STO * R_2) + (I/O * R_3)]$$

Where:

SS = Class of Service/Shift Multiplier (See Table 1)
CPU = CPU Hours Used
STO = CPU Storage Occupancy Megaword Hours Used
I/O = Thousands of Input/Output Requests Issued
R_1 = Central Processor Rate (See Table 2) per CPU hour
R_2 = CPU Storage Occupancy Rate (See Table 2) per megaword hour
R_3 = Input/Output Transfer Charge (See Table 2) per thousand

Table 1: Class of Service and Shift Multipliers

Class	Prime	Overnight	Weekend
Cray X-MP/14 Batch			
u	2.00	1.50	1.50
w	1.00	0.75	0.75
x	0.50	0.50	0.50
y	0.30	0.30	0.30
Cray X-MP/14 Interactive	2.00	1.50	1.50
IBM Batch			
U	2.00	1.50	1.50
W	1.00	0.75	0.75
X	0.50	0.50	0.50
Y	0.30	0.30	0.30
IBM Interactive			
Wylbur	6.00	4.50	4.50
CMS	2.00	1.50	1.50
TSO	3.00	2.25	2.25
CICS	2.00	1.50	1.50
VAX 8700 Batch			
W_BATCH (includes SHORT_W_BATCH)	1.00	0.75	0.75
X_BATCH (includes SPECIAL_X_BATCH)	0.50	0.50	0.50
Y_BATCH (includes SPECIAL_Y_BATCH)	0.30	0.30	0.30
VAX 8700 Interactive	2.00	1.50	1.50

Table 2: Central Processing Rates

	R_1 Central Processor	R_2 CPU Storage Occupancy	R_3 Input/Output Transfers
Cray X-MP/14	$500.00	$140.00	$0.32
IBM 3084	$300.00	$200.00	$0.32
VAX 8700	$ 60.00	$0.00	$0.32

PERIPHERAL, JOB, AND NETWORK SERVICES

These charges do not vary by shift and service level.

Resource	*Unit*	*Rate*
IBM/CMS, VAX/VMS, and Cray Interactive Session Time	Hour	$ 1.00
Batch Job Setup Charge	Job	0.25
Tape Setup	Tape	1.00
Output Printing	Thousand Lines	0.60
Remote Printing (VM Print Image Files and Microfiche)	Thousand Lines	0.20
Files Transferred as Card Images (Includes Remote Punching)	Thousand Cards	0.20
Output Punching	Thousand Cards	4.50
DatagraphiX AutoCOM II (ANLVM.FICHE)	Fiche	1.25
VAX Cluster Print Queue Set-Up Fee	One-Time	50.00
VAX Cluster Print Queue Subscription Fee[1]	Printer Month	10.00

SCIENTIFIC VISUALIZATION AND GRAPHICAL OUTPUT

At the time of establishing rates for FY1991, the Production Scientific Visualization Services were not yet available. Some prototype capabilities are available to scientific users who are willing to accept some unpredictability in schedules and some experimentation. Charges are presented here for planning purposes and will likely need to be revised after the video recording system has been in production for a while and the demand and turnaround times are better understood.

Animation experience is available with selected visualization software. Selected 2-D imaging tools include NCSA Image, X Image, and DataScope; Stardent Dor'e and AVS; PV-Wave; and SGI GL. 3-D imaging tools include Imgslice, VoxelLab, Stardent Dor'e and AVS, and SGI GL.

Animation Resource	*Unit*	*Rate*
Recording System Setup (Includes Data Transfer, Program Setup, Equipment Setup, and Initial Image Manipulation)	Session	$75.00
Video Recording System Usage		
Interactive or Real-Time Recording	Hour	$10.00
Stop-Frame Recording	Hour	$5.00
Creation of BetaCam Master Tape (Retained by CTD)	Tape-Minute	$2.00
3/4" Dub from Betacam Master (Required by Film and Video for Post-Production Editing)	10 Minutes	$25.00
	20 Minutes	$40.00
	30 Minutes	$50.00
	60 Minutes	$75.00
VHS or Betamax Format Copies	10 Minutes	$15.00
	20 Minutes	$25.00
	30 Minutes	$35.00
	60 Minutes	$50.00
35mm Slide Output (Includes Setup, Film, and Development)	Slide	$9.00

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[1] In addition to the monthly user charge, users will incur Remote Printing charges.

Graphical Output Resource	*Unit*	*Rate*
Per Job Surcharge	Job	$ 0.15
Frames	Frame	0.02
Device Time		
Matrix	Hour	45.00
FR80 16mm Color or Black and White	Hour	75.00
Materials		
Matrix Color Film	Foot	1.50
Matrix Color Transparency	Foot	6.00
FR80 16mm Color or Black and White	Foot	1.50
CalComp 5835 Forms Charge	Job[2]	5.00

MISCELLANEOUS SOFTWARE, ACCESS, AND USAGE CHARGES

Resource	*Unit*	*Rate*
Basic Cost Center Access Charge	Cost Center Month	$100.00
(The monthly user and cost center access charges for the IBM Professional Office System (PROFS), the Human Resource System (HRS) access charges, the ANSYS monthly access charges, the access to ANLPHONE, and the access to other Laboratory-wide databases have been "bundled" into a single cost center charge.)		
ANSYS Software Package	CPU Minute	2.04
CTD Staff Effort	Hour	51.75
File Server Subscription Fee	User Month	10.00

DIRECT ACCESS STORAGE

Resource	*Unit*	*Rate*
MVS Disks ($.0067914 per track day)	Megabyte Day	$ 0.15
CMS Virtual Disks (Minidisk) ($.0067914 per track day)	Megabyte Day	0.15
VMS Permanent Disks ($.00007324 per block day)	Megabyte Day	0.15
Cray Permanent Disks ($.00058594 per block day)	Megabyte Day	0.15
Sunserver Permanent Disks ($.00014648 per block day)	Megabyte Day	0.15
CMS Minidisk Restoration from Back-Up Tape	File or Minidisk	35.00
MVS Dataset Restoration from Back-Up Tape	Dataset	35.00
VMS File Restoration from Back-Up Tape	File	35.00
Cray File Restoration from Back-Up Tape	File	35.00
Fileserver Restoration from Back-Up Tape	File	35.00

TAPE LIBRARY SERVICES

Storing a copy of a library tape in another building provides library tape disaster protection in the event the CTD tape library in Building 221 is destroyed, as a copy of a user's critical data remains intact. Users who have personal tapes they use in their own building (not Building 221) can store a copy of these tapes in Building 221 as a personal tape to achieve the same level of disaster protection.

All CTD tapes (reels or cartridges) are considered part of the CTD library and are not available for temporary use outside of CTD. Instead, users should purchase tapes for use outside of CTD from Argonne stock or other suppliers. Data on library tapes in CTD can then be copied onto personal tapes for use outside of CTD. When users no longer need the data in CTD, they can release the library tape. If, however, users decide to purchase a tape from CTD, the rate shown applies to cover the cost to replace and prepare another tape for use in the CTD library.

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[2] In addition to the Forms Charge, users will incur Output Printing charges (see "Peripheral, Job, and Network Services").

Resource	*Unit*	*Rate*
Storage Slot Rental		
Library Tape Reel	Tape Slot Day	$ 0.04
Library Cartridge (IBM 3480 or 8mm Type)	Tape Slot Day	0.03
Library Tape Disaster Protection	Tape Slot Day	0.10
Personal Tape	Tape Slot Day	0.10
Tape		
Purchase of Cleaned/Tested Tape Reel	Tape Reel	35.00
Return of Tape Reel (Credit)	Tape Reel	18.00
Purchase of Cartridge (IBM 3480 or 8mm Type)	Cartridge	10.00
Return of Cartridge (Credit)	Tape	5.00
Maintenance for User-Owned Tape Reels		
Cleaning User-Owned Tape Reels	Tape	3.00
Cleaning and Testing User-Owned Tape Reels	Tape	20.00

DATA COMMUNICATIONS SERVICES

Resource	*Unit*	*Rate*
Tymnet Usage	Connect Hour	18.00
ANL/FNAL Microwave Access Charge	User Month	65.00
Asynchronous Ports		
1,200 Bits Per Second Dedicated	Port Month	100.00
2,000 to 4,800 Bits Per Second Dedicated	Port Month	120.00
Dial-Up	Connect Hour	0.42
X.25 Multiplexer Port, 1,200 to 9,600 Bits Per Second	Line Month	225.00
IBM 3277 Local Attachment	Port Month	125.00
Binary Synchronous Ports		
1,200 to 9,600 Bits Per Second Dedicated (Station ID and Port)	Port Month	150.00
19.2 Kilobits Per Second Dedicated (Station ID and Port)	Port Month	200.00
50 to 56 Kilobits Per Second Dedicated (Station ID and Port)	Port Month	275.00
2,000 or 4,800 Bits Per Second Dial-Up (One Station ID)	Station Month	100.00
Additional Station IDs, Dedicated or Dial-Up	Station ID Month	40.00
Laboratory-Wide DECnet	Port Month	150.00
Peer-to-Peer File Transfer Network Connection		
1,200 to 9,600 Bits Per Second (Station ID and Port)	Port Month	400.00
19.2 to 50 Kilobits Per Second (Station ID and Port)	Port Month	500.00
Single User NJE Routing Through Central VAX[3]	Station Month	30.00
Multiuser NJE Routing Through Central VAX[3]	System Month	250.00
Single User Unix NJE Routing	Station Month	13.00
RADS Remote Job Entry Station (Station ID and Port)	Station Month	1,000.00
Printerms Maintenance	Month	30.00
DECwriter III Maintenance	Month	30.00
Vadic Modem 1,200 Bits Per Second Maintenance	Month	15.00
Dedicated Terminal Server Port	Port Month	75.00
Dedicated Terminal Server Port Set-Up Fee	One Time	1,100.00

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[3] The Laboratory-Wide DECnet/NJE service was established in FY1989 as an extension to the Peer-to-Peer File Transfer Network Connection services. In addition to the monthly user charge, users will also incur file transfer charges (see "Peripheral, Job, and Network Services").

PRIVATE BRANCH EXCHANGE (PBX) SERVICES

Resource	*Unit*	*Rate*
Basic Station Service (Formerly Pool Charges)	Month	$40.00
Service Order Processing (Physical Move, Add, or Change)	Each	50.00
Dedicated Onsite Circuit Terminations	Month	4.00
Dedicated Fiber Optic Terminations	Month/Fiber/Termination	50.00
Voice Mail	Mailbox Month	6.75
Measured Services		
Federal Telecommunications Service (FTS)	Minute	0.50
Local Measured Service (Area Codes 312 and 708 and Portions of 815)	Minute	[4]
Long Distance Service (National and International)	Minute	[4]
Miscellaneous Commercial Communications Vendor Services		[5]
Lemont Main Numbers		
Private Dedicated Lines		
Cellular Telephone Usage		
Other Offsite Services		
Station Equipment		
Telephone Instruments		
Single-Line Analog Telephone	Month	$ 1.00
Display (Alpha/Numeric Add-On to ITE)	Month	2.75
ITE 4 Telephone (1 Line, 4 Button)	Month	2.00
ITE 12 Telephone (8 Line, 12 Button)	Month	6.00
ITE 12S Telephone (8 Line, 12 Button, Speakerphone)	Month	7.00
ITE 12SD Telephone (8 Line, 12 Button, Speakerphone, Display)	Month	10.00
ITE 24 Telephone (18 Line, 24 Button, 40 Character Display)	Month	17.50
Miscellaneous Equipment		
Cellular Telephone Rental ($20.00 Set-Up Charge)	Day	2.00
Speakerphone (External)	Month	4.00
Remote Billing Station (Lodging Only)	Month	130.00
Other Miscellaneous Station Equipment	Month	2.00
Digital Data Interface Equipment		
Asynchronous		
ADI 100 Asynchronous Data Interface	Month	4.00
ACI 100 Asynchronous Data Interface	Month	7.50
ADI 101A Rack-Mounted Asynchronous Data Interface	Month	3.50
ADI 101A Rack Cabinet	Month	8.00
ADI 101A Shelf	Month	5.50
Synchronous		
DIU-2 Synchronous Data Interface w/o Phone	Month	19.00
Ethernet		
DOB-4 for Ethernet Service with ITE 12	Month	19.50
LDI 400/DIU-4 for Ethernet Service without Telephone	Month	25.50
LDI 410/DIU-5 LANmark Ethernet Gateway	Month	60.00
IBM 3270		
DOB-6 for LANmark 3270 with ITE 12	Month	22.00
LDI 700/DIU-6 for LANmark 3270 without Telephone	Month	18.50

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[4] These calls will be rated and billed at approximately 90 percent of AT&T and IBT tariffs with respect to distance, time of day, and length of call.

[5] Commercial communications vendors provide the listed telecommunication services and bill CTD. CTD bills the monthly costs of these services to the using organization according to the vendor supplied invoice.

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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

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AT URBANA-CHAMPAIGN

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Computing Center Classes

COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory
Building 221
Argonne, Illinois 60439-4822
FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Computer Network	Bob McMahon (Acting)	B239	2-7270	B17385 AT ANLVM
Data Communications	Linda Winkler (Acting)	B251	2-7236	B32357 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	B159	2-7329	B32848 AT ANLVM
Planning, Finance, and Administration	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.3, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

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COMPUTING COMMENTS

ANL JOINS CONCURRENT SUPERCOMPUTING CONSORTIUM IN ACQUIRING 528 NODE INTEL IPSC/860 DELTA

On Tuesday, November 13, 1990, the Concurrent Supercomputing Consortium announced that it is acquiring an Intel iPSC/860 Delta Supercomputer. Consortium members are Argonne National Laboratory; the California Institute of Technology; the Center for Research in Parallel Computation; the Defense Advanced Research Projects Agency; Intel's Supercomputer System Division; the Jet Propulsion Laboratory; Lawrence Livermore National Laboratory; Los Alamos National Laboratory; NASA's Office of Aeronautics, Exploration and Technology; the National Science Foundation; Oak Ridge National Laboratory; Pacific Northwest Laboratory; Purdue University; and Sandia National Laboratory. In April 1991, the machine should be delivered to the California Institute of Technology. If programmed properly to use all of its computing potential, the Delta Supercomputer could achieve a sustained 31.7 gigaflops.

The Intel iPSC/860 Delta is a Multiple Instruction Multiple Data (MIMD) machine. It will have 528 i860 computational nodes arranged in a 16 x 33 rectangular array with six 80386 service nodes running a Unix-like shell. Each computational node can perform double-precision arithmetic at 60 megaflops and will have 16 megabytes of its own memory, giving the system a potential 31.7 gigaflops with 8.85 gigabytes of distributed memory. The system will have an additional 32 input/output (I/O) nodes to access 46.7 gigabytes of online disk storage, 8mm tape drives for back-up, and 4 I/O slots taken up by a High-Performance Parallel Interface (HiPPI).

Until the Delta Supercomputer arrives, an interim 64 node iPSC/860 Gamma has been placed at the California Institute of Technology. This machine will allow prospective users to develop and test programs. Argonne will acquire an eight node iPSC/860 Gamma machine to be used as a staging platform and development machine for programs to run on the Delta. This machine should arrive in late December 1990 and will be placed in the Advanced Computing Research Facility (ACRF). The Delta will be used primarily by those ANL divisions that contributed funds to its acquisition--Environmental Assessment and Information Sciences, Chemistry, Mathematics and Computer Science, Materials Science, and Physics--and for projects funded by the Laboratory Director and the Associate Laboratory Director for Physical Research.

FLOORS IMPLEMENTATION FOR FY1991

In FY1991, computing floor assessments will be used to ensure the recovery of the budgeted central computing costs recommended by the Computing Policy Committee and approved by the Management Council. The FY1991 implementation of floors will differ from previous years with respect to assessments.

Floor assessments are charged to cost centers to make up the difference between the projected and actual Computing and Telecommunications Division (CTD) central computing income. Instead of quarterly assessments, FY1991 floor assessments will be charged to cost centers on a bimonthly schedule, with assessments actually taking place in the month following the two-month assessment period (for example, assessments for October and November 1990 will be posted in the December 1990 financial reports). Special assessments will take place in August and September 1991. Cost centers that meet or exceed floor usage as designated by their Associate Laboratory Director (ALD) area will not incur floor assessments.

Divisions are eligible for rebates if the following two conditions are met:

1. CTD must have an over-recovery for the year, and part of the over-recovery must be because of the floors assessment. Only the over-recovery from the assessment will be available for rebate to the ALD areas.

2. The ALD area must have met its floor level for the year (without assessments counted) and have paid an assessment in one of the assessment periods.

CTD encourages users to contact their division management for guidance about floor levels. CTD also encourages users to schedule central computer use early in the fiscal year to take advantage of the lower priority charges available before the workload increases and users resort to using higher priorities.

COMPUTING SERVICES DURING CHRISTMAS THROUGH NEW YEAR'S PERIOD

Beginning at 7:00 a.m. on Saturday, December 22, 1990, and continuing until 7:00 a.m. on Wednesday, January 2, 1991, the weekend and holiday computing rates will be in effect. Except for a 16-hour period between 4:30 p.m. on December 24 and 8:30 a.m. on December 25 (when no operator is present), users can expect service equivalent to regular weekends when a single operator is available to respond to tape mount requests, to distribute printed output, to assist users, and to restart failed systems.

From 4:30 p.m. on December 24 until 8:30 a.m. on December 25, Building 221 will be locked. Users who need access to retrieve output during this time will need to get a key from the guard post at the Northgate Road entrance.

Users with special requirements for computing services during this period should call the User Services consultants at extension 2-5405 as soon as possible to allow time to arrange for these needs.

HIGH-PERFORMANCE COMPUTING SEMINARS

The series of high-performance computing seminars is continuing. Upcoming talks for December 1990 are:

Tim Davis, University of Florida
Multifrontal Methods for Sparse Matrices with Unsymmetric Nonzero Pattern
Thursday, December 13, 1990

Roland Freund, NASA Ames Research Center
QMR: A Quasi-Minimal Residual Method for the Solution of Non-Hermitian Linear Systems
Wednesday, December 19, 1990

Check the *Argonne Bulletin* and the special announcements for the times and locations of the seminars. To have your name added to the distribution list for abstracts, contact Claudette DaCosse at extension 2-5415.

COMPUTING CLASSES SCHEDULED FOR DECEMBER 1990 AND JANUARY 1991

During December 1990 and January 1991, CT will offer nine classes. The schedule is appended t this *Newsletter*. To register, call or visit the CT Consulting Office (Building 221, Room A-139 extension 2-5405). All prospective attendees shoul register so that we can gauge the size of classes an notify attendees of any schedule changes. CTD wi reschedule or cancel classes with fewer than six reg istrants *one week* prior to the scheduled date of th class.

Cray X-MP Architecture and Vectorizatio Techniques (two 3-hour sessions) is for users wh want to optimize their Fortran program to take fu advantage of the Cray X-MP/14 high-performanc computer. Topics include Cray architecture, vectori zation, optimization tools and techniques, and cod examples.

Introduction to Unix (two 3-hour sessions) is a overview of the Unix operating system. Scientifi computing users will need some familiarity wit Unix to use the Cray X-MP, new scientific work stations, and future advanced architecture compu ers. Attendees will become familiar with using th file system, changing file permissions, using the editor, using mail, configuring the user environmen using job and process control, using the Transmis sion Control Protocol/Internet Protocol (TCP/IP using good computer protection practices, and usin many useful commands. CTD will establish tempo rary accounts on the CTD Sun Unix server for atte dees for the duration of the class. The class wi entail the use of Unix from ASCII terminals to rei force the lecture content.

Introduction to Computing Facilities and Serv ces (one 3-hour session) provides an overview of t computing facilities and services available Argonne. New Argonne computer users, as well anyone else interested in computing at Argonn should attend this class.

Overview of the Central VAX 8700 for Know edgeable VMS Users (one 1-hour session) is f VAX users already familiar with the VAX and t VMS operating system. It is an overview of t locally defined features of the central VAX cluste Topics include user groups and the use of cost ce ters to distinguish these groups, file protections a default file protections, the size of VMS quotas, the names and characteristics of batch queues, available disk space and using it efficiently with scratch disk space, the **SETUP** command and applications associated with it, the System Back-Up Frequency (including incremental back-ups and file restoration capabilities), proxy accounts (including VAX proxy for MVS JES3), MultiNet information (including some commonly used TCP/IP nodenames), the various applications the VAX 8700 has, and some of the features of local help libraries. Users who have not used a VAX with VMS should attend *Introduction to VAX/VMS* and *Programming in VAX/VMS* first.

Introduction to Wylbur for MVS Batch Computing (one 3-hour session/lab) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the IBM MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit IBM MVS and Cray UNICOS batch jobs; and to review IBM MVS and Cray UNICOS batch output.

Introduction to VAX/VMS (one 3-hour session) is for first-time VAX/VMS users who need an overview of the features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up sub-directories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to the Extensible VAX Editor." Everyone registering for this class should request an account on the VAX 8700 before attending the class to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

Introduction to UNICOS (two 3-hour sessions) is for new users who want basic information on UNICOS on the Cray X-MP/14 high-performance computer. The class covers introductory material on the Unix file system, space management, and shell programming and how to submit jobs and to manage Cray files from the IBM MVS front-end stations or from scientific workstations using Transmission Control Protocol/Internet Protocol (TCP/IP).

Programming in VAX/VMS (one 3-hour session) acquaints VMS users with features of VMS. Topics include programming VAX Fortran; writing DCL (Digital Command Language) procedures; using the VMS system debugger, the runtime library, and system services; and reviewing VMS internals.

Using CMS with IBM 3270-Compatible Display Terminals (two 2-hour lectures and two 1-hour labs) is for CMS users on an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or an ASCII terminal with the Hydra Protocol Converter. The class is for people who send or receive electronic mail; who organize information in files and obtain information from files; who create and modify data, programs, or text files; or who use applications packages such as Cuechart, SAS, Script, and Tellagraf. Everyone registering for the CMS class must have a VM/SP account before attending the class. To request an account, contact Account Services (Building 221, Room A-147, extension 2-5425).

COMPUTER PROTECTION

ANL FDDI REQUIREMENTS FOR TRANSMITTING SENSITIVE DATA

The Computing Policy Committee (CPC) has approved a recommendation that requires any node accessing the Laboratory-wide Fiber Distributed Data Interface (FDDI) ring to receive the same degree of protection that sensitive computers must receive. Therefore, this requirement will enable users to transmit sensitive information through the Laboratory-wide FDDI ring without violating any ANL or DOE security requirements, as long as the transmission link at the user's site contains adequate protection.

To protect sensitive Laboratory data and to preserve the integrity of the ANL backbone FDDI ring, the CPC has issued the following directives:

- Host computers cannot connect directly to the Laboratory-wide FDDI ring.
- Routers connecting divisional local area networks (LANs) to the Laboratory-wide FDDI ring are the only routers allowed on the ring.

- All routers for the Laboratory-wide FDDI ring must be in controlled areas, regardless of where they are installed at the Laboratory.

- CTD has responsibility for the protection and integrity of the Laboratory-wide FDDI ring as well as the Laboratory-wide Ethernet backbone and Private Branch Exchange (PBX) LANmark networks. Consequently, CTD must procure and configure equipment and provide risk assessments and security plans.

- Divisions must provide funding for the purchase of the routers.

The reason for protecting nodes connected to the FDDI ring is that every node on an FDDI ring sees every packet of information circulating on the ring (the ring does not provide point-to-point communications). This protection is not necessary for nodes accessing LANmark, since LANmark routing provides point-to-point transmission. For example, an information packet from one ANL division placed on LANmark and addressed to one of the computers on the computer room Ethernet in Building 221 is not seen by any of the LANmark nodes of any other division. The point-to-point LANmark communications link and the ANL backbone Ethernet in the computer room in Building 221 protect the transmission.

Divisions using or planning local networks (either Ethernets or FDDI rings) to transmit sensitive data must address the vulnerabilities of these networks in division risk assessments and protection plans. For further information and assistance, contact the Computer Network Section at extension 2-7270.

CMS NEWS

VS FORTRAN VERSION 2.4.0 OF THE IBM VS FORTRAN COMPILER AND LIBRARY AVAILABLE FOR TESTING IN CMS

Version 2.4.0 of the IBM VS Fortran program product is now available for testing in CMS. The version of VS Fortran in current production in CMS is Version 1.4.1. Version 2 Release 4 of VS Fortran is IBM's latest version of this compiler and library. This version of the compiler is a major revision to the Version 1.4.1 compiler that has been the production CMS compiler since 1987. There are many enhancements in Version 2.4.0 that are useful for debugging and optimizing programs (even programs written for non-IBM systems) and for converting existing non-IBM Fortran programs to use in CMS.

Major enhancements to VS Fortran Version 2.4.0 include:

- The addition of a full screen Interactive Debug (IAD) facility.

- The ability to detect input conversion and record length errors.

- The Intercompilation Analyzer (ICA), which can detect incompatibilities between separately compiled program units. The ICA compile-time option invokes this analysis during compilation.

- The language capabilities of VS Fortran Version 2:

  —Graphic relational operators as an alternative to Fortran 77 relational operators.

  —Symbolic names up to 31-characters, which can include the underscore (_) character.

  —The DO WHILE statement.

  —The ENDDO statement to terminate DO loops.

  —Up to 99 continuation statements.

- The pseudo-assembler listing provided by VS Fortran Version 2. This listing contains the code generated by the compiler.

- The math routines:

  —Single, double, and extended precision MOD library functions are more precise.

  —Single and double precision scalar complex divide routines are more precise and faster.

  —The old complex divide and MOD functions are in the alternate math library VSF2MATH TXTLIB. To use the old math library routines, add VSF2MATH before VSF2FORT in your GLOBAL TXTLIB statement (see below).

To use VS Fortran 2.4.0, enter:

```
FORTVS2 filename (options
```

where "filename" is the name of the Fortran program to be compiled and "options" is any compiler options. The FORTVS2 exec will link and access the FORTVS 2 minidisk.

Before running programs compiled with VS Fortran 2.4.0, you must include VSF2FORT TXTLIB in your GLOBAL TXTLIB list and VSF2LOAD LOADLIB in your GLOBAL LOADLIB list. For example:

```
GLOBAL TXTLIB userlibs VSF2FORT CMSLIB
GLOBAL LOADLIB VSF2LOAD
```

where "userlibs" includes any other libraries needed for your program (for example, AMDLIB, INTLIB, DIS110A, DIS110B, and IMSL).

To run your program, enter:

```
LOAD filename (START
```

To invoke full screen Interactive Debug, compile the program with the SDUMP and TEST compiler options and enter:

```
IAD filename
```

VS Fortran Version 2.4.0 is documented in the *VS Fortran Version 2 Language and Library Reference* (SC26-4221-04) and the *VS Fortran Version 2 Programming Guide* (SC26-4222-04), and the Interactive Debug is documented in the *Interactive Debug Guide and Reference* (SC26-4223). These manuals are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies). (The manuals with document numbers ending in "-03" are for Version 2.3.0.)

If there are no difficulties, CTD will make Version 2.4.0 the production version on Monday, January 14, 1990.

CRAY NEWS

CRAY FILE SYSTEMS REORGANIZED

Recently, CTD reorganized the Cray file systems to provide better performance and reliability. In particular, we reduced the size of the **/s1** file system and moved it so that it spanned only two of the four DD40 disks, making it less susceptible to potential disk failures. Previously, it spanned all four of the DD40 disks.

CTD created a new file system, **/t1**, by using the remaining space from **/s1**. The **/t1** file system is for programs that require large work files to solve out-of-core problems. We have defined **/t1** to provide improved performance for large, mostly sequential files. In particular, **/t1** does not use the "ldcache" facility, while **/s1** does. You can define a temporary directory in **/t1** by using the **tmpdir** command. This directory remains in effect for the life of a job or interactive session.

CTD is restricting the use of **/t1** to those users who have tuned their programs for I/O. Users who have tuned their programs for input/output (I/O) by using **assign** statements or who believe that they would benefit by tuning their programs for I/O should contact the User Services consultants at extension 2-5405.

MANAGEMENT INFORMATION SYSTEMS

FY1991 MIS PROJECTS APPROVED

In FY1991, the Administrative Data Processing Oversight (ADPO) Committee has recommended funding ten projects in Management Information Systems (MIS). The projects fall into four basic groupings.

In the people systems area, the Committee recommended funding for the Human Resource System (HRS) replacement project, a major consolidation of personnel and payroll systems. The Applicant Information System (AIS) will streamline the handling of job applications, and the Human

Resource Business System (HRBS) enhancement project will build on the existing network of personal computers to improve efficiency.

In the financial area, the Integrated Financial System (IFS) project will continue its work on the refinement of the user environment. The project will also begin work on the first part of the effort system and the first stage of the budget systems replacement. Later stages of both projects will be funded by reallocation of funds from other projects as changes become possible.

The Argonne Integrated Materials Management System (IMMS) will move forward with the selection of a vendor and the development of a basic software package. Because of its size and complexity, this project may well extend funding for acquisition of software into the next fiscal year.

The Argonne Information Management (AIM) System will begin implementation of its library management system. The project will install the data analysis and retrieval functions of the new system. Over the next several years, IMMS will develop into a major Laboratory-wide system that will affect all aspects of purchasing, procurement, and charging of materials.

INTEGRATED FINANCIAL SYSTEM UPDATE

In the last quarter of FY1990, the Integrated Financial System (IFS) project acquired new and improved reporting tools from Dun and Bradstreet Software (DBS). These products will allow the Project Team to provide more capabilities for the financial system users, including (1) user-developed online query access to financial data, (2) additional standard online screens for user inquiries, and (3) the ability to download financial data to workstations.

The new products fall into two categories. The first category is "workstation enabling" software. New releases of the financial applications and tools now contain auxiliary software called BrightView. BrightView consists of both mainframe and PC-based software and makes online applications look and feel similar to some of the premier PC-based packages by using pop-up windows, pull-down menus, an optional mouse, online "tutorial-style" help, context sensitive help, hot-keys, and full color.

The second category includes the new tools that have been added to Information Expert (IE): Expert Query and ExpertLink. With Expert Query, the end user can perform ad hoc online queries of financial data, so that the user will not have to wait for a batch report to view the results. The query executes immediately, and the results are displayed at the user's workstation or terminal. With Expertlink, the user can route output data to a workstation from any of the IE components and from online screens. The user can easily load this data into spreadsheets, databases, and graphics software.

The Project Team has begun to test these new capabilities and expects to make them available in the third quarter of FY1991. Progress on all phases of the IFS project will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

MVS NEWS

CTD REPLACES IEBGENER WITH ICEGENER IN VARIOUS MVS CATALOGED PROCEDURES

In January 1991, CTD will replace the IBM utility IEBGENER with the more economical ICEGENER utility in various MVS cataloged procedures (such as SDSKSDSK and SDSKTAPE). The ICEGENER utility has been available since November 1988. The major benefit of ICEGENER is the faster processing provided. Another benefit is the addition of informative messages that appear on the SYSPRINT listing. ICEGENER messages describe the characteristics of the input (SYSUT1) dataset and the record counts of the input and output (SYSUT2).

Benchmarks have shown reductions of as much as three times for CPU use and memory use and 35 times for EXCP counts. Users invoking the modified cataloged procedures should experience a significant reduction in job cost. Questions should be directed to the User Services consultants at extension 2-5405.

OS/VS COBOL VERSION 1.2.4 OF THE IBM OS/VS COBOL COMPILER AND LIBRARY AVAILABLE FOR TESTING IN MVS BATCH

Version 1.2.4 of the IBM OS/VS Cobol program product is now available for testing in MVS batch. The version of OS/VS Cobol in current production in MVS is Version 1.2.3. Version 1 Release 2.4 of OS/VS Cobol is IBM's latest version of this compiler and library. IBM will fix bugs reported in Version 1.2.4; they will not fix bugs in Version 1.2.3. The enhancement in Version 1.2.4 is the MIGR compiler option. Migration flagging analyzes Cobol source programs and issues informational messages indicating Cobol statements that are no longer valid or that are implemented differently by the VS Cobol II Compiler. These messages help programmers migrate programs from OS/VS Cobol to VS Cobol II.

To test OS/VS Cobol 1.2.4, you must override the STEPLIB and/or LIBRARY symbolic parameters; different combinations of these parameters appear in each COBxxx cataloged procedure. To override parameters for each procedure, see Table 1. For example:

```
//step EXEC COBCEP,
//      STEPLIB='SYS2.COBLINK',
//      LIBRARY='SYS2.COBLIB'
```

OS/VS Cobol Version 1.2.4 is documented in *IBM VS COBOL for OS/VS* (GC26-3857-4) and *IBM OS/VS COBOL Compiler and Library Programmer's Guide* (SC28-6483-2), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

If there are no difficulties, CTD will make Version 1.2.4 the production version on Monday, February 4, 1991.

Table 1

Required Overrides To Test OS/VS Cobol 1.2.4

	C	CD	CEG	CEP	CLG	CP	EG	EP	LG
STEPLIB='SYS2.COBLINK'	X	X	X	X	X	X			
LIBRARY='SYS2.COBLIB'			X	X	X		X	X	X

PERSONAL COMPUTING AND WORKSTATIONS

LABORATORY OBTAINS SOFTWARE TO REMOVE VIRUSES

To combat the threat to ANL of viruses that can attack computers that use the MS-DOS operating system, CTD has obtained a copy of Clean-up Version V67, purchased a license for 100 copies, and distributed 75 copies to Argonne's IBM personal computer virus fighting team members. The Clean-up program attempts to remove viral infections from files that cannot be restored from a back-up disk. This version can disinfect over 40 different types of viral infections. CTD will obtain updates for this software as they become available.

CTD recommends that you check for these viruses by using the following procedures:

1. Run the Viruscan program to verify that your files are not infected. When Viruscan completes with the "No Viruses Found" message, no further action is necessary.
2. If Viruscan identifies an infected file, notify Jean Troyer, the Computer Program Protection Manager (CPPM), at extension 2-7440.
   a. Locate your most recent back-up copy.
      i. Delete the infected file.
      ii. Restore it from the previous back-up copy.

   iii. Rerun the Viruscan program to make sure the virus is gone.

b. If you have no back-up copy:

   i. Use the CLEAN.EXE program to attempt to resolve the difficulty by eliminating the virus. CLEAN.EXE may not be able to recover all of the infected file. Keep the write protect TAB in place on the Clean-up diskette to prevent possible infection.

   ii. Review the computer protection plan for your application.

   iii. Institute a practice of making regular back-ups.

CTD is distributing Viruscan Version 67 and Clean-up Version 67 on one diskette to Argonne's personal computer virus fighting team members. This diskette, *Viruscan/Clean-Up for IBM PC V67*, is 5 1/4" and is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

NEW VERSION OF TELNET/TN3270 FOR IBM PERSONAL COMPUTERS

CTD is distributing the public domain tn3270 program from Clarkson University. Clarkson tn3270 Version 2.2/TN/TC-D is available for the IBM PC-XT and IBM PC-AT or compatible computers and the IBM PS/2 computers. The Clarkson tn3270 program provides IBM personal computers interactive access and file transfer capabilities over the Laboratory-wide Ethernet by using the Transmission Control Protocol/Internet Protocol (TCP/IP). Version 2.2/TN/TC-D resolves bugs in earlier versions, including correctly concealing your password when logging onto the Cray, working correctly with the vi editor in Unix, and enabling users to reset communications during Customer Information Control System (CICS) sessions. This program emulates an IBM 3277 full screen terminal or a VT102 terminal and provides several special capabilities, including Tektronix 4014 emulation, a file transfer protocol (FTP) server, and simultaneous sessions on up to 20 host computers (depending on the amount of memory available in your personal computer).

You can use the Clarkson tn3270 program to conduct sessions on the IBM system, the Cray X-MP/14, the central VAX 8700, and any of the divisional Sun and Ridge workstations or any node available on Internet. This program can redefine key sequences to use program function keys and can use script command files.

The IBM version of Clarkson tn3270 requires PC-DOS or MS-DOS 2.0 or later; a minimum of 360K random-access memory (RAM); a 3Com Corporation 3C501, 3C503, or 3C523 Etherlink adapter board; and an Ethernet connection. The Ethernet connection will have to be on a local area network cable that is, in turn, connected to the Laboratory-wide Ethernet to access Laboratory resources in CTD.

There are two diskettes for the IBM version of Clarkson tn3270: *NCSA Telnet for the IBM PC Version 2.2TN and 2.2D* (3 1/2") and *NCSA Telnet for the IBM PC Version 2.2TN and 2.2D* (5 1/4"). These diskettes are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting them). Before you can use your Clarkson tn3270 diskette, you must obtain your own unique Ethernet address from the Computer Network Section (extension 2-7236). Attempting to connect to the network without first obtaining an address may result in disruptions for other TCP/IP network users.

SAS/PC SOFTWARE PRICES INCREASE

With the availability of more powerful personal computers, the Statistical Analysis System/Personal Computer (SAS/PC) product has a wider appeal for many statistical and reporting applications. CTD has increased the prices of the various SAS/PC software packages (Base, Stat, Graph, and ETS) to reflect the effort involved in ordering, installing, maintaining, and providing some consulting for user SAS/PC applications. The cost for each software package (for both the initial first year license and for subsequent annual maintenance) has increased by $50. The new rates are:

	First Year	Current Maintenance Renewal
SAS/PC Base	$125	$90
SAS/PC Stat	$120	$85
SAS/PC Graph	$205	$125
SAS/PC ETS	$410	$205

To continue using SAS/PC beyond the first year, SAS requires a maintenance charge. CTD collects the charge and distributes new SAS keywords to prevent automatic expiration.

A few licenses are still available for each of the above products. To install PC/SAS, you need the following minimal requirements:

1. 640K of memory with 128K available.
2. 6.6 megabytes of disk space for Base SAS; other software requires additional space.
3. MS-DOS 2.0 (or PC.DOS 2.0) or later.

For further information, contact Mike Thommes at extension 2-5461.

TELECOMMUNICATIONS NEWS

ANL IBM COMPUTERS CONNECT TO DOE GERMANTOWN

DOE has installed a 9600-bit-per-second (bps) data link to connect the Germantown IBM computer center with the Argonne central IBM computers. The Computer Network Section has configured the Laboratory's IBM computers to use this new link for interactive terminal sessions. DOE Chicago Operations and approved ANL personnel may use this link instead of dial-up connections. This link uses the IBM Systems Network Architecture (SNA) protocols to connect the Laboratory's SNA network to the DOE SNA network.

To access the DOE computers, you must have a real or emulated IBM 3270 terminal. Real IBM 3270 terminals will connect to an IBM 3274 cluster controller. ASCII terminals may emulate an IBM 3270 terminal by connecting to CTD's Hydra Protocol Converter. IBM personal computers may emulate an IBM 3270 terminal by using an ASCII terminal communications program (for example, Kermit), a 3Com MAXESS 3270 emulator, or the tn3270 terminal emulator program. Apple Macintosh users may use an ASCII terminal communications program (for example, Kermit) or the tn3270 terminal emulator program. When connected, IBM 3274 and Hydra users will automatically see the ANL SNA banner. To see the ANL SNA banner (see Figure 1), tn3270 users need to tab the cursor to the Command ===> prompt and to enter DIAL SNA.

To logon to the DOE IBM VM/PROFS system, enter:

```
DOEVM userid
```

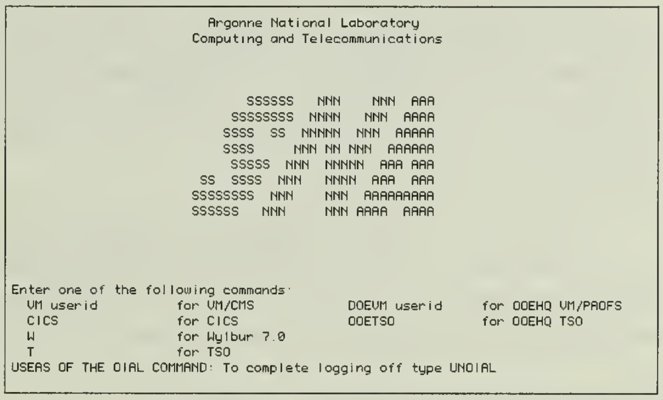
The system will prompt you for your DOE password.

To logon to the DOE IBM TSO system, enter:

```
DOETSO
```

The system will prompt you for your DOE TSO userid and password.

DOE has SNA connections to most of its contractor sites. If necessary, we may activate these connections. If you are currently accessing a DOE computer via dial-up connections, call Rich Carlson at extension 2-7289.



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                         Argonne National Laboratory
                       Computing and Telecommunications



                              SSSSSS   NNN     NNN  AAA
                            SSSSSSSS  NNNN    NNN  AAAA
                           SSSS  SS  NNNNN  NNN   AAAAA
                           SSSS     NNN NN NNN   AAAAAA
                            SSSSS  NNN  NNNNN   AAA AAA
                        SS  SSSS  NNN   NNNN   AAA  AAA
                       SSSSSSSS  NNN    NNN   AAAAAAAAA
                       SSSSSS   NNN     NNN AAAA   AAAA




Enter one of the following commands:
  VM userid          for VM/CMS            DOEVM userid      for DOEHQ VM/PROFS
  CICS               for CICS              DOETSO            for DOEHQ TSO
  W                  for Wylbur 7.0
  T                  for TSO
USERS OF THE DIAL COMMAND: To complete logging off type UNDIAL
```

Figure 1: SNA Logon Screen

MULTINET 2.2 DISTRIBUTION AVAILABLE

MultiNet Version 2.2 software for VAX/VMS systems is now available. Argonne has acquired a sitewide license for MultiNet that allows any VMS system on the Argonne site to run the MultiNet software. For details on the features of MultiNet Version 2.2, see "MultiNet 2.2 Installed on the Central VAX Cluster" in the November 1990 *Newsletter*. CTD has made the MultiNet 2.2 distribution available to VAX managers for installation on their systems through an access control list (ACL) on the Argonne central VAX cluster. If you have registered to copy the MultiNet distribution and have established a VAX 8700 proxy account, you may access the directory ANLCV1::ANL_PRODUCTS:[MULTINET]. For details, refer to the 0README.1ST file in the ANL_PRODUCTS:[MULTINET] directory. CTD will order V2.2 documents for users on request. If you have a VMS system and would like to register to install MultiNet on your system, contact Linda Clark at extension 2-8403.

Argonne has also acquired a sitewide license for MultiNet Network File System (NFS) Client software. CTD is testing and installing this software. As this testing proceeds, we will make more details available.

NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 3,230 computers at over 1,165 sites. Since the last *Newsletter* article in October 1990, the following universities and organizations have joined BITnet:

Academy of Science--Prague
Federal University of Espirito Santo--Brazil
Federal University of Mato Grosso do Sul--Brazil
Japan Institute of Molecular Science
National Research Center (CNR)--Naples
Nobeyama Radio Observatory--Japan
Oklahoma City University
Prague Academy of Sciences
Royal Military School--Brussels
Siena College--Loudonville, New York
Silesian University--Katowice, Poland
State University of Rio de Janeiro
Tamkang University--Taiwan
Technical University of Magdeburg--Germany
United Nations Industrial Development Organization--Vienna
University of Ferrara
University of La Verne--California
Warsaw Technical University
Yokohama University

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS, the VAX 8700, or MVS Wylbur):

```
HELP BITNET NODES
```

VAX/VMS NEWS

TCP/IP CRAY PROCEDURE AVAILABLE TO OTHER VAXES

CTD has developed a Digital Command Language (DCL) procedure to replace the VAX Cray Station. This procedure allows VAX users to submit jobs to the Argonne Cray via the Transmission Control Protocol/Internet Protocol (TCP/IP) network and automatically returns job output to the submitter. It also allows the user to view the status of Cray jobs and to cancel a job. This procedure is shell-independent and has been tested with Bourne shell, C shell, and Korn shell scripts.

This procedure will run on any VMS VAX with MultiNet Version 2.2 or later version installed. It uses the TCP/IP utilities **ftp**, **rsh**, and **rcp** to implement its **submit**, **status**, and **kill** functions. It also uses the **tdispose** command on the Cray to return job output to the submitter.

This procedure also performs the function, **configure**, that builds the TCP/IP files needed to communicate between the VAX and the Cray. The **configure** function prompts VMS users for Cray account information and builds several configuration files (**.netrc**, **.rhosts**, and **.forward**) on the Cray. No files are created on the VAX.

This procedure and an accompanying HELP file are available to VAX system managers. CTD is providing this procedure "as is" to interested users. If a user wishes to submit jobs to another Cray or other Unix host, some modification is necessary.

To copy this procedure and HELP file from the central VAX cluster, enter:

```
$ COPY /LOG SYS_PUBLIC:CRAY_TCPIP.COM myvax::
$ COPY /LOG SYS_PUBLIC:CRAY_TCPIP.HLP myvax::
```

where "myvax" is the name of the VAX to which the file should be copied. The above commands assume that the user's account on "myvax" has a proxy account that allows access from the central VAX cluster account.

SAS RELEASE 6.06 GOES PRODUCTION ON THE VAX 8700 COMPUTER

On Thursday, December 13, 1990, CTD will place into production the Statistical Analysis System (SAS) Release 6.06 on the central VAX 8700 cluster. SAS 6.06 will replace SAS 5.18, which is the current production release. For more information about SAS Release 6.06, see "SAS Release 6.06 Installed as a Test Version on the VAX 8700 Computer" in the November 1990 *Newsletter*.

To use SAS 6.06 before December 13, 1990, enter:

```
$ SETUP SAS/V=SAS606
```

After December 13, 1990, enter:

```
$ SETUP SAS
```

To use SAS 5.18 temporarily after December 13, 1990, enter:

```
$ SETUP SAS/V=SAS518
```

At the end of December 1990, CTD will remove SAS 5.18 from the central VAX cluster.

By default, SAS 6.06 uses the Display Manager System (DMS) as its editor. DMS is a windowing facility for viewing and performing tasks with the SAS system. You can use it on many terminal types (for example, VTxxx terminals or terminal emulators). To display terminal types supported by DMS, enter:

```
$ TYPE SAS_FSDEVICE
```

SAS 5.18 contains local ANL modifications that allow it to create graphical output in either Computer Graphics Metafile (CGM) or Computer Associates POP metafiles. Because SAS 6.06 now includes a native capability to generate binary CGM metafiles, these local modifications will not be included. To create a binary CGM output file, use the following SAS statements before you invoke any of the graphic procedures:

```
FILENAME GRAFOUT 'filename.ext';
GOPTIONS HSIZE=horiz VSIZE=vert DEVICE=CGMC
  NODISPLAY GSFLEN=512 GACCESS=SASGAFIX
  GSFMODE=REPLACE GSFNAME=GRAFOUT;
```

where "filename.ext" is the name of your CGM output file (extension CGM recommended), "horiz" is the horizontal size of your plot, and "vert" is the vertical size of your plot.

To get hardcopy output from these CGM metafiles, you must perform a temporary intermediate step. Normally, invoking the **HARDCOPY** command would be sufficient to postprocess these metafiles. However, because of the current incompatibility between SAS-generated CGM metafiles and the IBM MVS graphics postprocessing cataloged procedures (for example, PMATRIX) used by **HARDCOPY**, your SAS-generated CGM metafiles must first be converted to POP metafiles by the Tellagraf 7.0 utility ANYPOP (see "Tellagraf 7.0 Available for User Testing" in this *Newsletter*). When the appropriate software becomes available on the IBM MVS system, CTD hopes to correct this difficulty.

For descriptions of the major SAS 6.06 manuals, see "Recently Updated and Published Documents" in this *Newsletter*.

Direct questions and comments to Mike Thommes at extension 2-5461 or via electronic mail address ANLVM::B14908.

ANSYS 4.4A+ INSTALLED FOR USER TESTING

CTD has installed ANSYS 4.4A+ (the latest release of the finite element structural analysis program from Swanson Analysis Systems, Inc.) on the Argonne central VAX 8700 for user testing. We encourage those who use ANSYS to begin using the new version. When ANSYS 4.4A+ has been sufficiently tested by users, we will make ANSYS 4.4A+ the default version. Your feedback on the new version will be given to the vendor and used by CTD to manage the orderly transition to the new version.

To use ANSYS 4.4A+, enter:

```
$ SETUP ANSYS /V=44A MAX=maximum-wavefront-value
```

where "maximum-wavefront-value" is the value that your analysis problem requires. We have noticed that ANSYS users have been setting up ANSYS

4.3A and ANSYS 4.4 with "maximum-wavefront-values" of either 580 or 2000. Therefore, we have implemented only the 580 and 2000 maximum-wavefront versions with ANSYS 4.4A+ to conserve the scarce disk space. If you omit the "MAX=" parameter, then you will get the 580 version. If your work requires the solution of finite element problems with a larger maximum wavefront than 2,000, notify the User Services consultants at extension 2-5405, and we will make a larger version available to you.

ANSYS 4.4A+ is an error correction release that, unlike previous error correction releases, also includes the advanced release of ANSYS 5.0 development items that are completed, reviewed, tested, and verified at the time of its release. New development features should be transparent to users of ANSYS 4.4A+, and all ANSYS 4.4 documentation is valid and will remain essentially unchanged until the formal release of ANSYS 5.0, which is planned for 1991. To use the new features, the new documentation (see below) is necessary.

A new ancillary ANSYS program, DISPLAY, replaces the programs PLOT33I, PLOTHP, TRAN33, and PLOTPS, which were used to direct the ANSYS graphics metafile (file 33) to appropriate devices. DISPLAY can produce graphics output on DEC REGIS terminals, Tektronix terminals, and X Window System terminals and workstations and can direct hardcopy output to PostScript printers. The ANSYS program PLOT33 is still available to convert ANSYS graphics metafiles to standard graphics metafiles (CA-DISSPLA POP metafile format) that can then be directed to Argonne plotters with the **HARDCOPY** command or displayed to a wide range of graphics terminals with the Tellagraf **ANYPOP** command.

Documentation specific to ANSYS 4.4A is:

ANSYS Engineering Analysis System User's Manual (DN-R144:44A)
ANSYS Engineering Analysis System User's Manual Update Set (DN-R145:44A)
Revision 4.4A Changes to the ANSYS Program (DN-T026:44A) (a tutorial)
ANSYS Revision 4.4A Graphics Supplement (DN-G101:44A)

CTD will order these documents for users on request.

For a brief overview of the new capabilities with ANSYS 4.4A+, see *Summary of ANSYS Revision 4.4A New Features* (a six-page document), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

TELLAGRAF 7.0 AVAILABLE FOR USER TESTING

Tellagraf Version 7.0 is now available for testing on the VAX 8700. New features include the ability to draw 3-D line, area, bar, and pie charts having an illusion of depth; to draw thematic maps; and to choose selections from pulldown menus. Several maps are available (including the world by continents, the world by countries, continents by countries, countries by states, and states by county). A new feature of Tellagraf 7.0, Tellagraf Menus, allows users to choose functions via the cursor to build their Tellagraf plots instead of having to know the Tellagraf commands.

The ANYPOP utility to postprocess metafiles has been upgraded to accept both POP and binary CGM metafiles. The new CGM translation is more robust in handling different CGM instructions. In addition, new Tellagraf commands have been added, and many bugs existing in Version 6.1 have been fixed.

To use the Tellagraf 7.0 features, enter:

```
$ SETUP TELLAGRAF/V=TAG70
```

To use Tellagraf Menus, enter:

```
$ TAGMENUS
```

NOTE: Your old Tellagraf profile, TAGPRO.DAT, is *not* usable with Tellagraf 7.0. You should erase your old profile and create a new profile with Tellagraf's profile prompter. Also, the profile prompter's questions for ECHO and ERROR REPORT are no longer asked. The POP and CGM drivers are now located under the device name of METAFILE_DISP and METAFILE_CGMB, respectively.

Documentation for Tellagraf 7.0 is in *CA-TELLAGRAF Command Reference Manual Release 7.0* (R199TG7001S), a two-volume manual available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

CTD plans to make Tellagraf 7.0 the production version on Monday, January 14, 1991. Direct any questions or comments to Mike Thommes at extension 2-5461 or at electronic mail address ANLVM::B14908.

BITS & BYTES

CUMULATIVE SUBJECT INDEX

Each December we publish the cumulative index from the *Newsletters* of previous years. Other monthly issues include an index only for the current calendar year.

CMS and VAX users may search the entire *Newsletter* index online for a particular *Newsletter* topic by entering:

```
LOOKUP topic
```

where "topic" is the name of the topic (one or more words) for which you need information. LOOKUP will display the topic entries on the CMS user's terminal and will return a file to the VAX user's "READER" subdirectory. The filename will be "LOOKUP.topic" and can be either "TYPEd" to your terminal or sent to a printer.

Wylbur users may use LOOKUP by entering

```
DO LOOKUP
```

and responding to the prompt for a topic. After the system has sent the information to your fetch queue, enter:

```
FETCH topic
```

Then enter:

```
LIST
```

The system will list the page numbers for every index entry containing the topic name.

For more information, enter:

```
HELP LOOKUP
```

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new or recently revised documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing and Telecommunications Documents

The Advanced Software Development and Commercialization Project: Progress Report PR-1 (ANL/TM 484) is the first of a series of reports pertaining to progress in the *Advanced Software Development and Commercialization Project,* a joint collaborative effort between the Center for Supercomputing Research and Development of the University of Illinois and the Computing and Telecommunications Division of Argonne National Laboratory. The purpose of this work is to apply techniques of parallel computing that were pioneered by University of Illinois researchers to mature computational fluid dynamics (CFD) and structural dynamics (SD) computer codes developed at Argonne.

Argonne National Laboratory Computing and Telecommunications Division Rates Revised October 15, 1990 lists the processing rates of various computers as well as provides information about the computing services, batch services, and interactive services. Computing rates are determined by the shift in effect (prime, overnight, or weekend) when the job starts. This revised rate sheet supersedes the rate sheet of July 12, 1990.

An October 1990 addendum to the *Mass-11 Word Processing* boxed set of documents (consisting of three separate documents subtitled *Getting Started, Pocket Reference Guide,* and *VAX/VMS Reference Manual)* summarizes installation-dependent options available with the version of Mass-11 installed on the central VAX 8700 computer.

The *University of Chicago Agreements with Personal Computer Vendors* (October 29, 1990) contains the latest lists of personal desktop computer discounts available through the University of Chicago to Argonne employees for both personal and Laboratory purchases. This revised price list supersedes the price list of September 6, 1990.

Mathematics and Computer Science Document

The Advanced Computing Research Facility: Opening New Avenues of Advanced Scientific Computing Research (June 1990) is a brochure that briefly defines the Advanced Computing Research Facility (ACRF) and its objectives: (1) to encourage experimentation on computers with innovative designs, (2) to assess the suitability and diverse machines for specific applications, (3) to support the Division's research in parallel computation, and (4) to operate as a national user facility. This revised brochure supersedes *ACRF: Opening New Avenues of Advanced Scientific Computing Research* (January 1987).

SAS Documents

The *SAS Companion for the CMS Environment, Version 6, First Edition* (1-55544-399-0) provides both tutorial and reference information about the SAS System under CMS. It provides host-specific details to supplement the information in *SAS Language and Procedures: Usage, Version 6, First Edition* (1-55544-371-0); *SAS Language: Reference, Version 6, First Edition* (1-55544-381-8); and the *SAS Procedures Guide, Version 6, Third Edition* (1-55544-378-8). Parts 1 and 2 show you how to perform common tasks and explain how you can use the SAS System under CMS to accomplish these tasks. Parts 3, 4, and 5 provide complete descriptions of all the features of the SAS System that have behavior specific to CMS, but do not attempt to teach you how to use the software. This manual is for SAS System users who have had some experience with the SAS System, but not necessarily under CMS. This manual assumes that users can log on and log off CMS and that they are familiar with basic CMS commands.

The *SAS Companion for the VMS Environment, Version 6, First Edition* (1-55544-392-3) provides both usage and reference information about the SAS System under VMS. Parts 1 and 2 show you how to perform common tasks and explain how you can use the SAS System under VMS to accomplish these tasks. Parts 3, 4, and 5 provide complete descriptions of all the features of the SAS System that have system-dependent behavior, but do not attempt to teach you how to use the software. This manual is for SAS System users who have had some experience with the SAS System, but not necessarily under VMS. This manual supersedes the *SAS Companion for the VMS Operating System, 1986 Edition* (0-917382-98-6).

SAS/GRAPH Software: Introduction, Version 6, First Edition (1-55544-395-8) provides basic introductory material about SAS/Graph software, Release 6.06, and demonstrates how to produce simple charts, maps, plots, and text slides. This manual is for those who want or need to learn how to use SAS/Graph software and who consider themselves new users.

SAS/GRAPH Software: Reference, Version 6, First Edition (1-55544-379-6) is a two volume set that provides reference information about all facilities, procedures, statements, and options that you can use with SAS/Graph software, Release 6.06. These manuals do not attempt to teach you how to use the software. These manuals are for users experienced in using SAS software. Users should understand the concepts of programming in the SAS language and should have an idea of the tasks they want to perform with SAS/Graph software. This manual supersedes the *SAS/GRAPH User's Guide, Version 5 Edition* (0-917382-68-4) or the *SAS/Graph User's Guide, Release 6.03 Edition* (1-55544-088-6).

The *SAS Guide to Macro Processing, Version 6, Second Edition* (1-55544-382-6) provides complete documentation on portable features of the Release 6.06 SAS macro facility used with base SAS software. In this context, portable includes features that work the same across all host operating systems. (In contrast, host-specific features are those that are meaningful only under specific host operating systems or that work differently under different host operating systems.) This manual includes an introductory tutorial, reference material, a chapter of examples that provide usage material, and a glossary. This manual is for users who either have previous experience with the SAS System or who have at least an intermediate level of experience with another programming language and who understand the fundamentals of programming logic. This manual supersedes the *SAS Guide to Macro Processing, Version 5 Edition* and *SAS Technical Report P-175, Changes and Enhancements to the SAS System, Release 5.18, under OS and CMS.*

SAS Language and Procedures: Introduction, Version 6, First Edition (1-55544-410-5) provides basic introductory material about base SAS software, Release 6.06. This manual describes base SAS software and explains how to access, analyze, manage, and present data in various formats. This manual is for those who want to learn how to use base SAS software and who are new SAS users.

SAS Language and Procedures: Syntax, Version 6, First Edition (1-55544-400-8) provides a quick but complete reference to the syntax of the portable base SAS software. In this context, portable includes features that work the same across all host operating systems. This manual is not meant to replace reference guides for base SAS software. This manual is for users who either have previous experience in using the SAS System or who have at least an intermediate level of experience with another programming language and understand the fundamentals of programming logic.

SAS Language and Procedures: Usage, Version 6, First Edition (1-55544-371-0) provides instructions and examples for accomplishing the primary tasks you need to complete in your daily use of the SAS System. This manual is a tutorial for base SAS software beginning with Release 6.06. This manual focuses on common tasks and explains the simplest way of accomplishing them. This manual is for users who have not used the SAS System but have some computer programming experience and know the fundamentals of programming logic, who have an introductory-level knowledge of the SAS System, or who are experienced SAS users who want to learn new tasks.

SAS Language: Reference, Version 6, First Edition (1-55544-381-8) provides complete reference information for all portable language features in Release 6.06 base SAS software. In this context, portable includes features that work the same across all host operating systems. (In contrast, host-specific features are those that are meaningful only under specific host operating systems or that work differently under different host operating systems.) This manual includes all aspects of base SAS software that are not procedures. This manual is for users who either have previous experience with the SAS System or who have at least an intermediate level of experience with another programming language and understand the fundamentals of programming logic. This manual supersedes *SAS User's Guide: Basics, Version 5 Edition* (0-917382-65-X); *SAS Technical Report P-146, Changes and Enhancements to the Version 5 SAS System; SAS Technical Report P-168, Changes and Enhancements to the Version 5 SAS System under VMS; SAS Technical Report P-175, Changes and Enhancements to the SAS System, Release 5.18, under OS and CMS; SAS Technical Report P-182, Changes and Enhancements to the SAS System, Release 5.18, under VMS;* and *SAS Technical Report P-183, Changes and Enhancements to the SAS System, Release 5.18, under AOS/VS and PRIMOS.*

The *SAS Procedures Guide, Version 6, Third Edition* (1-55544-378-8) provides complete reference information for all procedures in Release 6.06 base SAS software. This manual is for users who have not used the SAS System but who have some computer programming experience and know the fundamentals of programming logic and for experienced SAS users.

The *SAS/STAT User's Guide, Version 6, Fourth Edition* (1-55544-376-1) is a two volume set that documents the procedures available with Release 6.06 of SAS/STAT software. Volume 1 contains the introductory chapters and documents the ACECLUS through FREQ procedures. Volume 2 documents the GLM through VARCOMP procedures. This manual assists data analysts who use SAS/STAT software. This manual assumes you are familiar with basic SAS System concepts (such as creating SAS datasets with the DATA step and manipulating SAS datasets with the procedures in base SAS software). For mainframe and minicomputer sites using Release 6.06 software, these manuals supersede the *SAS User's Guide: Statistics, Version 5 Edition* (0-917382-66-8) and sections on the statistical procedures in the following technical reports: *SAS Technical Report P-146, Changes and Enhancements to the Version 5 SAS System; SAS Technical Report P-168, Changes and Enhancements to the Version 5 SAS System under VMS; SAS Technical Report P-175, Changes and Enhancements to the SAS System, Release 5.18, under OS and CMS; SAS Technical Report P-182, Changes and Enhancements to the SAS System, Release 5.18, under VMS;* and *SAS Technical Report P-183, Changes and Enhancements to the SAS System, Release 5.18, under AOS/VS and PRIMOS*. For microcomputers and Unix workstations, these manuals supersede the *SAS/STAT Guide for Personal Computers, Version 6 Edition* (1-55544-064-9) and the *SAS/STAT User's Guide, Release 6.03 Edition* (1-55544-088-6). If you are using the SAS System with PC DOS, continue to use the *SAS/STAT User's Guide, Release 6.03 Edition.*

SAS Technical Report P-204, SAS Software: Changes and Enhancements, Release 6.06 (1-55544-409-1) provides reference information about changes from Release 5.18 to Release 6.06 SAS software. However, it does not list any host-specific changes that are included in Release 6.06

SAS software. It is also not intended as a primary source of production information. This manual is for users who are already familiar with Version 5 software and want an overview of enhancements available in Version 6 and for new SAS software users who are interested in some of the new features included in Release 6.06.

Other Vendor Documents

CA-TELLAGRAF Command Reference Manual Release 7.0 (R199TG7001S) is a two-volume manual that is a complete reference to using CA-Tellagraf via commands. Volume 1 contains descriptions of the data-entry, chart-type, and annotation commands--all the commands you need for day-to-day use. Volume 2 contains information you need less often (such as descriptions of files and operating commands, chart-layout commands, instruction-string commands, and format commands).

Programming in C (0-672-489420-X) is a complete, easy-to-understand introduction to the C programming language for both the novice and experienced programmer. The text covers all aspects of the language and provides 90 complete program examples with their output. Each chapter's material is based on the material presented before it. Chapter 2 covers some fundamental terminology of programming languages and the process of compiling programs. Chapter 3 slowly introduces the C language; by Chapter 16, all the essential features are covered. Chapter 16 describes input/output (I/O) operations in C, and Chapter 17 includes more advanced features of the language. This revised 1990 edition supersedes the revised 1989 edition.

Summary of ANSYS Revision 4.4A New Features lists the new features in ANSYS Revision 4.4A.

Viruscan/Clean-Up for IBM PC V67 is a 5 1/4" diskette with the current release of Viruscan and Clean-up, a disinfectant program for the IBM Personal Computer. These programs can detect and correct known viruses (such as Jerusalem B, Fish, Fish6, and Yankee Doodle). CTD requests that you not make copies of these programs for others to use, because our license is limited to 100 copies of each of these programs. Copies of this diskette are available at the Document Distribution Counter. CTD is keeping a master list of all persons to whom these programs have been distributed.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD NOVEMBER 6, 1990

Bert Toppel (Reactor Analysis) opened the meeting for Dotti Bingaman (Environmental Assessment and Information Sciences) at 3:05 p.m.

Summary of Rates for FY1991. Mike Boxberger (Computing and Telecommunications) reported on the Computing Policy Committee (CPC) approval of the rates CTD has requested for computing center services and summarized the new rates (see "FY1991 Computing Rate Structure Rate Revised" in the November 1990 *Newsletter* and "Argonne National Laboratory Computing and Telecommunications Division Rates Revised October 15, 1990" appended to the November 1990 *Newsletter).* These rates will be in effect for the November 1990 billings. CTD will reprocess the October 1990 usage with the new rates as an exercise to show the recovery aspects of the new rate structure.

A question was asked about why there is no charge for memory on the VAX system whereas there is a charge for memory on the IBM system. On the VAX 8700, it is difficult to determine the actual working set size. VAX memory is cheap compared to IBM memory, and traditionally there has not been a charge for memory usage. It was also pointed out that on the IBM system the memory charge is for the memory requested, not what is actually needed or used.

Review of Floors Implementation for FY1991. John Bazzoni (Office of the Chief Financial Officer--Budget) reported on the way floors will be assessed this year and the policy concerning rebates at the end of the year (see "Floors Implementation for FY1991" in this *Newsletter).*

New Fortran 77 Compiler in MVS. Pete Bertoncini (Computing and Telecommunications) reported that on Monday, December 10, 1990, Version 2.4 of the VS Fortran compiler will become the production version for MVS and that Version 2.4.0 is available for testing in CMS (see "VS Fortran Version 2.4.0 of the IBM VS Fortran Compiler and Library Available for Testing in MVS Batch" in the November 1990 *Newsletter).* The major enhancements include improved data transfer rates for

DASD and tape I/O, the possibility of doing parallel I/O (data striping) with sequential datasets, and enhancements in the Intercompilation Analyzer (ICA) options. You can do data striping on a single volume or over several volumes (the recommended way to achieve greater improvements). The actual CPU time does not change, but you can reduce the elapsed time significantly if data striping is applied to several volumes. The ICA enhancements allow analyses of calling sequences, argument compatibility, common block lengths, and common block make-up. You can save the results in a dataset and update it with future compilations of additional and revised routines.

John Volmer (Computing and Telecommunications) reported on some benchmark runs with the new compiler. Using a LINPACK benchmark, the new compiler achieved performance comparable to the Fortran H Extended Enhanced (HXE) compiler. Bert Toppel then ran some production cases and found that formatted I/O still took considerably longer with the new compiler than with the HXE compiler. In cases where the CPU time was dominant, the differences were less. Formatted I/O was the big difference. Since the compiler library rather than the compiler itself drives the I/O, it was suggested that the HXE compiled code be run with the new library to see if the same comparisons resulted. This situation would further identify where the real difficulty was. Discussions will be held with the IBM representative to find out how to transmit these performance results.

New Fortran 77 Compiler on the Cray. Steve Karlovsky (Computing and Telecommunications) reported on the newest version of the Fortran compiler package for the Cray that will become the production version on Monday, November 12, 1990 (see "CTD Plans To Make CF77 Version 4.0 Production" in the November 1990 *Newsletter).* All the subpasses of the compiler package (FPP, FMP, CFT77, and SEGLDR) were updated. Users can invoke each subpass individually or perform all the steps by using the **cf77** command. A few of the **cf77** Version 3 command line options for the cft77 section will not work (since argument passing has been changed), and some of the options receive warning messages. The warning messages advise of options that will be removed in Version 5 and of preferred ways to achieve the same results. Enhancements include (1) increased portability through adoption of the military standard extensions (like DO WHILE and ENDDO), (2) increased performance through recursive inlining, (3) easier, more direct ways to control the inlining process, and (4) fixes to about 450 reported difficulties. Help pages are available under CF77 and all of the separate subcommands.

Plan To Reorganize Cray /s1 Scratch Space File System. Doug Engert (Computing and Telecommunications) reported on changes to the scratch space on the Cray to enhance performance, to increase reliability, and to increase flexibility. These changes came about when CTD needed to replace a disk. CTD moved the **/n2** file system to the Amdahl and about doubled its size. The scratch file system was split in two. CTD moved the **/s1** file systems and **/drop** to another disk. The **/s2** system is for large sequential files where the disk caching of the **/s1** system actually gets in the way. Therefore, users who can tune the access to their large sequential datasets will benefit from using the **/s2** system. Since CTD controls access to the **/s2** file system, users interested in using it should contact Doug at extension 2-5444. (Since this meeting, the file system name was changed to **/t1**. See "Cray File Systems Reorganized" in this *Newsletter.)*

Storage Space Difficulties on the VAX 8700. Andy White (Reactor Analysis) reported on his recent difficulties in accessing the VAX 8700 and in doing work because of the full disks. The disks seem to run with only 1 to 3 percent free space. CTD has placed the purchase of more disk space for the VAX 8700 as the highest priority item in their request for General Purpose Equipment (GPE) money from the Laboratory. There was a discussion about the use of storage on the VAX 8700 and the scratch time and back-up policies for scratch space, which may allow it to be used more fully by some users. There was also some discussion about allowing an unlimited number of versions of the same dataset name. Since June 1990, CTD can tell when a dataset was last accessed. The implementation of a migration system is difficult, because of the lack of tape drives and the need to develop the system. The applications program disk is full. CTD needs to remove some older application products from it.

Password Checking on the VAX 8700. Jean Troyer (Computing and Telecommunications) reported that CTD will check all passwords on the VAX 8700 with a new code received from DOE (see "CTD To Check Passwords on Central VAX Cluster" in the November 1990 *Newsletter).* This code is also available to other VAX managers. Because of the large amount of work necessary to check the password of each user against the dictionary, CTD will do this checking at night and at the lowest priority so that it will not interfere with other users' work.

Computing Policy Committee Report. Bert Toppel read the report of the CPC meeting of October 24, 1990, submitted by Dotti Bingaman. At this meeting, Jean Troyer described the Fiber Distributed Data Interface (FDDI) security issues (see "CPC Approves Recommendation To Protect FDDI Nodes and To Allow Sensitive Information on the Laboratory-Wide FDDI Ring" in this *Newsletter)*. Dave Weber (Computing and Telecommunications) summarized CTD utilization and recovery data for FY1990, and Mike Boxberger led a discussion of CTD rates for FY1991 (see the first item).

The CUG meeting adjourned at 4:45 p.m.

Ken Miles, CUG Secretary

MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD OCTOBER 11, 1990

Chairperson Mary Warren (Energy, Environmental and Biological Research) opened the meeting at 12:08 p.m. The group held elections for new officers. Floyd Bennett (Energy, Environmental and Biological Research) is the new chairperson; Chuck Malefyt (Materials and Components Technology) is the new secretary.

Rich Nixon (Graphic Arts) gave an update on personnel changes in Graphic Arts. Lisa Filotto was promoted to the newly formed position of Production Assistant. She is the Graphic Arts full-time liaison with the Government Printing Office and coordinates the printing of any Argonne documents that must be cleared. Julie Czarny (formerly with the Office of Public Affairs) recently joined Graphic Arts as a Customer Service Representative (CSR) Assistant. Gary Weidner is a newly hired CSR, who is taking over the duties formerly performed by Kim Andretich. A posting has been placed for the vacated secretarial position and for a newly created position called Production Manager. Other new postings are expected. Graphic Arts is making organizational changes to more effectively match job titles and responsibilities with the actual duties being performed.

Dee Wyman (Energy, Environmental and Biological Research) asked whether users should tag original pages that have paste-ups on them when they are sending a job to Graphic Arts to be printed. Mary Jo Thompson (Graphic Arts) said that no tags are necessary on jobs that are going to be offset printed. In this case, each page receives individual attention as the plates are made. On jobs for high-speed duplication, however, it is best to include a note warning the operator that the job contains some paste-ups, since these pages can be damaged if they are run through the machine. Bryan Schmidt (Energy, Environmental and Biological Research) asked if some types of paper are better than others to use for the original pages being sent to be printed. Bill Jepsen (Graphic Arts) responded that any paper is fine (including bond paper, heavier-weight "mats," and the shinier, whiter (that is, more reflective) PMT and "Laser Plus" paper. However, he did say pages with "thick" or "layered" paste-ups do present a problem, since the edges of the paste-ups can create shadows that print as dark lines. If such a page will be printed on a high-speed copier, the operator will automatically make an intermediate copy to use as an original. However, a user will have more control over the quality of the job if the user obtains the best possible copy and gives it to Graphic Arts with the package to be printed.

Joe Paulini (Graphic Arts) is looking for volunteers to join a steering committee prior to negotiating a contract for new copiers at the end of FY1991. The final choice will result from a bidding process. Interested parties can call him at extension 2-8162.

Floyd Bennett complimented Graphic Arts on the good (and quick) job it did printing portions of the Energy Systems Division review. Kathy Macal (Energy, Environmental and Biological Research) then discussed a job in which Graphic Arts successfully accomplished a nearly impossible job. Her emphasis was on the importance of providing the Graphic Arts CSR with as much information as possible as soon as possible. She had two jobs that were needed simultaneously, and each one required a one-week turnaround time in printing and a half million impressions. Because she warned Graphic Arts, the CSR was able to call various printers to find out if this request could be met and to set up a schedule for printing. Often, creative solutions (like arranging for a second shift or using the printing facilities of a federal prison) are possible, but only if there is enough time to make arrangements.

The next meeting will be held on Thursday, December 13, 1990, at noon in Building 201, Room 274.

Marita Moniger, Graphic Arts Users Group Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD NOVEMBER 14, 1990

Rodney East (Materials Science) opened the meeting at 11:00 a.m. Lee Wagar (Graphic Arts) sent the meeting announcement with QuickMail or Email, when possible, and with paper to those who have no electronic mail capabilities. If you have an electronic mail address and are not receiving an electronic meeting announcement, contact Lee Wagar at extension 2-5603.

John Mattson (Materials Science) is the chair of the Macintosh Programmer's Special Interest Group. He reported on the Pascal Object-Oriented Programming project. The after-hours classes will be onsite in mid-to-late January 1991. There will probably be 2 to 3 meetings of 1 to 1.5 hours each. Pascal (under the Think Pascal 3.0 compiler) will be the language used, although any structured programming background should be sufficient to profit from the course. For questions, comments, and further information, contact John Mattson at extension 2-5535 (or at QuickMail Zone: MSD 223 upstairs).

Bob Hablutzel (Apple Computer) presented the three new low-cost Apple Macintoshes. The Classic looks like, and is similar to, the SE and is the lowest cost Apple Macintosh currently available. It has an 8 megahertz 68000 processor. There is no upgrade path from a Plus or SE to the Classic, as the internals have been entirely reworked. It is available in two configurations: 1 megabyte random-access memory (RAM) and 2 megabytes RAM and a 40 megabyte internal hard disk. The LC, although modular, is not part of the II family. It is the lowest cost color Apple Macintosh and will be available within the next few months. It has a 16 MHz 68020 processor and a built-in 8-bit video. It cannot accept NuBus adapters, but does have a processor-direct slot. The IIsi is now the bottom of the II line (the others being the IIci and IIfx). It has a 20 MHz 68030 processor and a built-in 8-bit video. Adapters for either processor-direct or NuBus are available. The two color Apple Macintoshes used the new 12-inch RGB monitor. All these machine are or will be available from the University of Chicago Microcomputer Center. The University of Chicago's latest price list is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

Bob Christopher (T.R. Visuals) demonstrated In Focus and Proxima liquid crystal displays (LCDs). These rest on overhead projectors like viewgraphs and then project what is on an Apple Macintosh monitor. The top-of-the-line model can display up to 5,000 colors and has a list price of $5,995. The current projection panels have the typical slow redraw time of LCDs (precluding their use for animation); however, in the future, there may be some projection panels that will correct this deficiency.

The December 1990 meeting is scheduled to include demonstrations of Dreams 2.1, MacDraft 2.1, and Dimensions Professional.

The Apple Macintosh Users Group normally meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

The meeting adjourned at 11:45 a.m.

Lee Wagar, Acting Macintosh Users Group Secretary

WORKLOAD STATISTICS (OCTOBER 1 THROUGH OCTOBER 30, 1990)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	*END OF MONTH*	*ACTIVE DURING MONTH*
CMS	1,247	1,227	465
Wylbur	1,698	1,648	352
MVS TSO	63	57	13
CICS	2,258	2,177	144
MVS Batch	2,258	2,177	677
VAX/VMS	627	614	329
Cray	347	340	130
All Systems	2,258	2,177	1,003

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				*SESSION*	*CPU*
	PRIME	*NIGHT*	*WEEKEND*	*TOTAL*	*TIME (HRS)*	*TIME (HRS)*
INTERACTIVE						
CMS	11,965	2,551	1,761	16,277	38,427	80.18
Wylbur	7,790	356	260	8,406	8,425	6.34
MVS TSO	326	0	2	328	507	0.81
CICS	n.a.	n.a.	n.a.	n.a.	n.a.	4.06
VAX/VMS	20,681	4,049	2,647	27,377	20,275	186.38
Cray	2,387	204	156	2,747	1,137	16.01
IBM BATCH						
Class U	9,038	1,809	955	11,802	n.a.	18.68
Class W	20,073	2,788	686	23,547	n.a.	138.40
Class X	6	727	13	746	n.a.	65.39
Class Y	0	0	386	386	n.a.	23.38
Nonmain	16,084	2,023	1,157	19,264	n.a.	0.00
Total	45,201	7,347	3,197	55,745	n.a.	245.85
CRAY BATCH						
u	2,387	204	156	2,747	n.a.	36.08
w	2,910	332	156	3,398	n.a.	258.42
x	256	221	128	605	n.a.	110.32
y	3,488	849	719	5,056	n.a.	130.52
Total	9,041	1,606	1,159	11,806	n.a.	535.34
VMS BATCH						
W_BATCH	872	511	159	1,542	n.a.	57.21
X_BATCH	13	33	18	64	n.a.	81.58
Y_BATCH	1	0	1	2	n.a.	0.70
Total	886	544	178	1,608	n.a.	139.49

INPUT/OUTPUT

Lines Printed	
Local	69,226,656
Remote	68,471,441
Fiche	53,050,621
Cards Punched-Local Only	80,896
Tape Mounts	7,037
Microfiche Developed	5,813
Microfiche Frames Developed	1,120,044

GRAPHICS

	# OF JOBS	*# OF FRAMES*
CalComp Jobs	82	n.a.
Matrix 35mm Color	60	127
Matrix-8 x 10	2	2
Matrix-Negative	2	17
FR80 Film Plots		
35mm Black/White/Unsprocketed	4	32
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	0	0
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	24,880
New Tapes Saved	318
Tapes Released	1,237
Datasets Exported to Tape	2,517
Datasets Imported from Tape	575

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (OCTOBER 1 THROUGH OCTOBER 30, 1990)

	Monthly Totals	*Hardware*	*Scheduled Software*	*Other*	*Hardware*	*Unscheduled Software*	*Other*
			CMS				
All Shifts							
Interruptions	8.00	1.00	3.00	1.00	0.00	0.00	3.00
Hrs Unavailable	14.90	0.41	1.48	12.00	0.00	0.00	1.00
MTF/Unscheduled	235.03						
Monday-Friday, 7:00 *a.m.*-7:00 *p.m.*							
Interruptions		0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable							
MTF/Unscheduled							
			WYLBUR				
All Shifts							
Interruptions	14.00	0.00	8.00	1.00	1.00	2.00	2.00
Hrs Unavailable	22.16	0.00	6.81	11.86	1.33	0.85	1.30
MTF/Unscheduled	139.56				697.83	348.91	
Monday-Friday, 7:00 *a.m.*-7:00 *p.m.*							
Interruptions	1.00	0.00	0.00	0.00		1.00	
Hrs Unavailable	0.35	0.00	0.00	0.00		0.35	
MTF/Unscheduled	263.65					263.65	
			MVS TSO				
All Shifts							
Interruptions	12.00	0.00	7.00	1.00	1.00	2.00	1.00
Hrs Unavailable	21.66	0.00	6.73	11.86	1.33	0.85	0.88
MTF/Unscheduled	174.58				698.33	349.16	
Monday-Friday, 7:00 *a.m.*-7:00 *p.m.*							
Interruptions	1.00	0.00	0.00	0.00	0.00	1.00	0.00
Hrs Unavailable	0.35	0.00	0.00	0.00	0.00	0.35	0.00
MTF/Unscheduled	263.65					263.65	
			JES3				
All Shifts							
Interruptions	13.00	0.00	7.00	1.00	1.00	2.00	2.00
Hrs Unavailable	21.16	0.00	6.41	11.75	1.25	0.58	1.16
MTF/Unscheduled	139.76				698.83	349.41	
Monday-Friday, 7:00 *a.m.*-7:00 *p.m.*							
Interruptions	1.00	0.00	0.00	0.00	0.00	1.00	
Hrs Unavailable	0.25	0.00	0.00	0.00	0.00	0.25	
MTF/Unscheduled	263.75					263.75	
			CICS				
All Shifts							
Interruptions	1.00	0.00	0.00	0.00	0.00	1.00	0.00
Hrs Unavailable	0.35	0.00	0.00	0.00	0.00	0.35	0.00
MTF/Unscheduled	719.65					719.65	
Monday-Friday, 7:00 *a.m.*-7:00 *p.m.*							
Interruptions	1.00	0.00	0.00	0.00	0.00	1.00	0.00
Hrs Unavailable	0.35	0.00	0.00	0.00	0.00	0.35	0.00
MTF/Unscheduled	263.65					263.65	
			VAX/VMS (VAX 8700)				
All Shifts							
Interruptions	5.00	0.00	4.00	0.00	1.00	0.00	0.00
Hrs Unavailable	11.15	0.00	10.88	0.00	0.26	0.00	0.00
MTF/Unscheduled	708.85				708.85		
Monday-Friday, 7:00 *a.m.*-7:00 *p.m.*							
Interruptions		0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable		0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
			CRAY				
All Shifts							
Interruptions	12.00	4.00	6.00	1.00	0.00	0.00	1.00
Hrs Unavailable	30.45	10.36	5.50	14.25	0.00	0.00	0.33
MTF/Unscheduled	689.55						
Monday-Friday, 7:00 *a.m.*-7:00 *p.m.*							
Interruptions	3.00	0.00	2.00	0.00	0.00	0.00	1.00
Hrs Unavailable	1.58	0.00	1.25	0.00	0.00	0.00	0.33
MTF/Unscheduled	262.41						

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (OCTOBER 1 THROUGH OCTOBER 30, 1990)

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
	ADVANCED PHOTON SOURCE						
130	ADVANCED PHOTON SOURCE DIV	$180	$490	$0	$360	$101	$1,131
272	ADVANCED PHOTON SOURCE	$109	$0	$0	$32	$45	$185
340	APS DIVISION MANAGEMENT	$30	$0	$0	$0	$40	$69
341	APS ACCELERATOR PHYSICS	$330	$3,161	$263	$324	$58	$4,136
342	APS DIAGNOSTICS	$0	$20	$0	$0	$20	$40
343	APS LINAC	$0	$252	$0	$4	$43	$299
344	APS RF	$4	$0	$0	$0	$0	$4
345	APS VACUUM	$8	$3,422	$0	$84	$0	$3,514
347	APS CONTROLS	$62	$1	$0	$0	$5	$67
348	APS MAGNETS	$86	$3	$0	$0	$1	$89
349	APS POWER SUPPLIES	$39	$0	$0	$0	$0	$39
350	APS DIVISION MANAGEMENT	$17	$0	$0	$0	$7	$24
351	APS INSERTION DEVICES	$65	$47	$0	$0	$55	$168
352	APS BEAM LINE FRONT ENDS	$769	$663	$0	$324	$271	$2,027
353	APS BEAM LINE INSTRUMENTATION	$20	$1	$0	$1	$3	$26
361	APS PROJECT DIRECTION	$53	$6	$0	$0	$19	$78
362	APS MANAGEMENT GENERAL	$40	$0	$0	$0	$19	$58
SUBTOTAL		$1,810	$8,066	$263	$1,129	$686	$11,955
	ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH						
110	BIO & MED RES DIV	$1,907	$1,132	$246	$1,052	$1,221	$5,559
125	TECHNOLOGY TRANSFER CENTER	$106	$0	$0	$10	$112	$228
149	ENVIROMMENTAL RESEARCH DIV	$2,413	$253	$1,598	$974	$876	$6,115
155	ENERGY SYSTEMS DIVISION	$6,631	$6,127	$18,198	$1,993	$1,650	$34,599
165	ENV ASSESS & INFO SCI DIV	$5,779	$19,613	$2,049	$2,454	$3,798	$33,693
174	ENER/ENV/BIO PROG DIR	$15	$0	$0	$0	$100	$115
246	ES-NAT'L ENERGY SOFTWARE CTR	$126	$0	$0	$733	$895	$1,755
274	ENER/ENV/BIO RES PROG ADM	$85	$0	$0	$0	$171	$256
SUBTOTAL		$17,062	$27,125	$22,091	$7,217	$8,823	$82,318
	ENGINEERING RESEARCH						
102	EBR-II PROJECT-ANL WEST	$2,361	$32	$3,298	$1,154	$138	$6,983
104	FUELS AND PROCESSES	$505	$0	$9	$65	$7	$587
107	CHEMICAL TECHNOLOGY DIVISION	$571	$228	$0	$797	$520	$2,117
112	REACTOR ANAL & SAFETY	$20,504	$2,056	$5,924	$5,678	$3,237	$37,399
114	MATLS & COMP TECH DIV	$4,069	$4,318	$139	$2,368	$870	$11,765
115	ENGINEERING PHYSICS DIVISION	$11,359	$2,937	$42,477	$5,310	$3,104	$65,188
116	REACTOR ANALYSIS	$46,977	$6,497	$81,547	$10,726	$11,750	$157,498
117	APPLIED PHYSICS-ANL WEST	$2,867	$12	$13,862	$171	$306	$17,218
118	REACTOR EXP & EXAM DIV	$9,589	$598	$4	$476	$255	$10,922
119	ANALYTICAL LABORATORY ANL-WES	$0	$0	$0	$0	$100	$100
171	ENGRG RES PROG DIR	$4	$0	$0	$0	$105	$109
197	SPECIAL PROJECTS OFFICE	$679	$0	$0	$17	$179	$876
211	ENGINEERING PHYSICS DIVISION	$61	$16	$0	$22	$3,062	$3,161
269	CHEM TECH DIV-ANALYTICAL CHEM	$92	$0	$0	$4	$109	$205
271	ENGRG RES PROG ADMIN	$287	$0	$0	$12	$296	$595
SUBTOTAL		$99,925	$16,696	$147,261	$26,802	$24,037	$314,721
	PHYSICAL RESEARCH						
105	MATERIALS SCIENCE DIVISION	$1,625	$5,863	$4,853	$1,545	$670	$14,555
109	PHYSICS DIV	$2,054	$1,271	$335	$1,638	$656	$5,954
120	CHEMISTRY DIV	$1,014	$3,740	$38,041	$436	$342	$43,574
136	INT PULSE NEUT SOURCE PROG	$194	$608	$374	$258	$290	$1,723
137	HIGH ENERGY PHYSICS DIV	$736	$1,670	$1,093	$659	$628	$4,787
139	DIV OF EDUCATIONAL PROGRAMS	$1,904	$0	$0	$171	$226	$2,301
145	MATHEMATICS & COMPUTER SCI DI	$265	$56	$494	$1,041	$4,605	$6,461
146	CTD DIV - SCI APPL & RES	$25	$1	$0	$67	$1	$94
273	PHYSICAL RESEARCH PROGRAM ADM	$73	$0	$0	$20	$142	$235
SUBTOTAL		$7,890	$13,209	$45,190	$5,835	$7,560	$79,684
	EXTERNAL						
751	FERMI NATIONAL LABORATORY	$828	$0	$0	$240	$391	$1,460
752	NAVY	$13,050	$0	$0	$1,523	$6,476	$21,050
753	MORGANTOWN ENERGY TECH CENTER	$16	$0	$0	$650	$0	$666
754	DEPARTMENT OF ENERGY AT ANL	$0	$0	$0	$0	$0	$0
756	LOS ALAMOS	$24	$0	$0	$0	$0	$24
760	ABBOTT LABORATORIES	$12	$0	$155	$0	$0	$168
763	GENERAL ELECTRIC COMPANY	$0	$1	$0	$0	$0	$1
765	WESTINGHOUSE HANFORD COMPANY	$0	$2	$4	$0	$0	$5
766	BECHTEL NATIONAL, INC.	$0	$65	$171	$2	$1	$239
771	PURDUE UNIVERSITY	$3	$0	$0	$0	$0	$3
775	SMITHSONIAN	$0	$0	$0	$0	$3	$3
777	UNIVERSITY OF CHICAGO AT ANL	$28	$0	$0	$126	$0	$153
778	ARGONNE CREDIT UNION	$8	$0	$0	$0	$0	$8
779	UNIVERSITY OF ILLINOIS AT CHI	$8	$0	$0	$0	$0	$8
780	NEW BRUNSWICK LABORATORY	$25	$0	$0	$4	$4	$32
781	STATE OF ILL. DEPT. MENTAL HE	$0	$0	$0	$0	$6	$7
782	PACKER ENGINEERING	$4	$24	$1	$0	$0	$30
783	WEST VALLEY NUCLEAR SERVICES	$1,007	$0	$0	$8	$34	$1,050
784	SUPERCONDUCTING SUPER COLLIDER LAB	$8	$977	$674	$47	$0	$1,705
SUBTOTAL		$15,024	$1,068	$1,005	$2,601	$6,916	$26,614

OPERATIONS

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
143	SUPP SERV DIV - ELEC DEPT	$217	$14	$0	$234	$205	$669
148	HUMAN RESOURCES-MEDICAL DEPT	$998	$0	$0	$74	$416	$1,487
150	SUPPORT SERV DIV - SPEC MATLS	$215	$0	$0	$32	$130	$377
161	TECH INFO SERVICES DEPT	$727	$11,463	$0	$2,567	$843	$15,599
201	OFFICE OF THE DIRECTOR	$701	$0	$0	$150	$191	$1,041
202	OFC OF CHIEF OPER OFCR	$16	$0	$0	$76	$101	$194
210	SUPP SERV DIV - CENT SHOPS	$299	$0	$0	$51	$339	$690
216	SUPPORT SERVICES DIVISION	$191	$0	$0	$45	$140	$376
222	PLANT FAC & SERV-LODGING FAC	$0	$0	$0	$0	$100	$100
232	SUPPORT SERV DIV - SECURITY	$348	$0	$0	$0	$402	$750
234	SUPP SERV DIV-HEALTH PHY	$242	$3	$0	$34	$230	$508
235	SUPP SERV DIV-ENV SAFE HEALTH	$1,245	$0	$0	$112	$490	$1,848
236	SUPPORT SERV DIV - FIRE DEPT	$7	$0	$0	$0	$101	$108
245	COMPUTING AND TELECOM DIV	$17,994	$0	$0	$2,870	$2,509	$23,374
247	COMP & TEL DIV - COM SERV	$1,950	$0	$0	$429	$1,112	$3,491
260	SUPP SERV DIV-GRAPHIC ARTS	$195	$183	$0	$32	$125	$535
275	OFFICE OF PUBLIC AFFAIRS	$606	$0	$0	$60	$123	$789
276	OFC PUB AF - MOTN PIC UNIT	$65	$0	$0	$0	$23	$88
296	TELECOM COST/RECOVERY	$0	$0	$0	$65	$0	$65
315	SUPP SERV DIV-MATLS & SERV	$2,654	$0	$0	$971	$373	$3,998
316	PLANT FAC & SERV-VEH MAINT	$0	$0	$0	$0	$157	$157
317	PLANT FAC & SERV-DRIV&RIG SER	$15	$0	$0	$1	$100	$116
319	SUPP SERV DIV-TRAVEL OFC	$5	$0	$0	$134	$100	$238
322	SUPP SERV DIV-PROCUREMENT	$52	$0	$0	$1	$103	$156
333	QA, ENVIR & SAFETY OFC	$176	$1	$0	$25	$209	$411
336	SUPP SERV DIV - INSPECTION	$19	$0	$0	$0	$28	$48
400	OFC OF CHIEF FIN OFFICER	$55,987	$0	$0	$3,399	$16,049	$75,436
401	ACCOUNTING	$0	$0	$0	$126	$100	$226
402	OFC CHIEF FIN OFCR-DATA ENTRY	$12	$0	$0	$125	$0	$137
403	BUDGET OFFICE	$125	$0	$0	$0	$523	$648
410	HUMAN RESOURCES DEPARTMENT	$10,157	$0	$0	$1,078	$1,409	$12,645
412	AFFIRM ACTION PROGRAM	$89	$0	$0	$38	$100	$227
501	PLANT FAC & SERV-BLDG MAINT	$48	$0	$0	$40	$974	$1,062
502	PLANT FAC & SERV-INSTALLATION	$23	$0	$0	$5	$100	$127
503	PLANT FAC & SERV-GROUNDS	$0	$0	$0	$0	$100	$100
504	PLANT FAC & SERV-CUSTODIAL	$4	$0	$0	$0	$100	$104
505	PLANT FAC & SERV-WASTE MGMT O	$59	$0	$0	$44	$100	$204
506	PLANT FAC & SERV-PLANT MGR OF	$781	$0	$0	$14	$421	$1,215
510	PLANT FAC & SERV-UTILITY SYST	$0	$0	$0	$0	$100	$100
512	PLANT FAC & SERV-FAC PLNG/ENG	$478	$0	$0	$30	$149	$657
530	SITE MGRS OFC-ANL WEST	$21	$0	$0	$0	$101	$122
531	PERSONNEL-ANL WEST	$187	$0	$0	$190	$100	$477
532	SPECIAL MATLS-ANL WEST	$1,045	$0	$0	$181	$273	$1,500
533	ACCOUNTING-ANL WEST	$0	$0	$0	$0	$100	$100
534	PURCHASING-ANL WEST	$0	$0	$0	$0	$100	$100
535	SECURITY - ANL WEST	$0	$0	$0	$0	$100	$100
536	SAFETY STAFF-ANL WEST	$188	$0	$0	$2	$102	$292
537	INFORMATION SERVICE-ANL WEST	$0	$0	$0	$0	$100	$100
538	MATLS HANDLING-ANL WEST	$86	$0	$0	$12	$100	$198
548	ANL WEST GENERAL EXPENSE	$151	$0	$0	$52	$0	$204
550	COMPUTER APPL & SERV - ANL-W	$137	$16	$0	$32	$101	$286
551	RAD MONITORING-ANL WEST	$0	$0	$0	$0	$100	$100
554	MACHINE SHOP-ANL WEST	$37	$0	$0	$7	$100	$144
556	SITE ENGRG-ANL WEST	$108	$0	$0	$19	$100	$227
557	PLANT SERVICES-AW-SERVICE REQ	$55	$3	$0	$2	$106	$167
558	PLANT SERVICES-AW-FUNCTION	$4	$0	$0	$0	$0	$4
559	FOOD SERVICES - ANL WEST	$0	$0	$0	$0	$100	$100
561	OFC OF QUALITY ASSURANCE - AW	$4	$0	$0	$0	$101	$105
563	TALENT RESOURCE POOL-ANL WEST	$0	$0	$0	$0	$100	$100
SUBTOTAL		$98,728	$11,683	$0	$13,358	$30,759	$154,527
		$240,439	$77,847	$215,811	$56,941	$78,781	$669,820

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	**Onsite (Illinois)**	**Onsite (Idaho)**	**Offsite (Area Code 708)**
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter			
1200 to 19.2K Bits Per Second (Onsite)	2-3270	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-3270
9600 to 19.2K Bits Per Second (Offsite)			972-3219
X.25 Terminal Multiplexor			
300 to 19.2K Bits Per Second(Onsite)	2-2525	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-2525
9600 to 19.2K Bits Per Second (Offsite)			972-2519
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*

* When using a 300 bits per second modem, you must use a capital "P" to logon.

Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700			
1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-8700
9600 to 19.2K Bits Per Second (Offsite)			972-8745
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-5588
9600 to 19.2K Bits Per Second (Offsite)			972-4726
Argonne MFEnet Dial-Up			
300 to 19.2K Bits Per Second	2-7920	n.a.	972-7920

Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	**VM/SP**	**VMS**	**MFEnet Gateway**
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

** Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.

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Argonne National Laboratory
Computing and Telecommunications Division
December 1990 and January 1991

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering nine classes. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

CRAY X-MP ARCHITECTURE AND VECTORIZATION TECHNIQUES (RESCHEDULED)

Goals:	To learn to optimize Fortran programs on the Cray X-MP/14 high-performance computer. Topics include Cray X-MP architecture, vectorization, and optimization tools and techniques.
Length of Class:	Two 3-hour sessions
Dates and Time:	December 11 and 13, 1990 (Tuesday and Thursday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Instructors:	Tom Canfield Pete Bertoncini

INTRODUCTION TO UNIX (RESCHEDULED)

Goals:	To learn the basic concepts required for using Unix computer systems. This class will be a general overview of Unix commands, editing, and file systems and will demonstrate topics from logging on to creating, compiling, and executing a program.
Length of Class:	Two 3-hour sessions
Dates and Time:	December 18 and 19, 1990 (Tuesday and Wednesday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Suggested Reading:	*A Practical Guide to the Unix System* (0-8053-0243-3)
Instructor:	Dave Leibfritz

INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals:	To develop an overview of available computing facilities and services provided by CTD.
Length of Class:	One 3-hour session
Date and Time:	January 10, 1991 (Thursday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Suggested Reading:	*Guide to Computing at ANL* (ANL/TM 336, REVISION 2) *Recommended Documentation for Computer Users at ANL* (ANL/TM 379, REVISION 2)
Instructor:	Fred Moszur

OVERVIEW OF THE CENTRAL VAX 8700 FOR KNOWLEDGEABLE VMS USERS

Goals:	To understand the differences between the central VAX 8700 and the other VAXes at ANL relating to the following topics: user groups and the use of cost centers for distinguishing these groups, file protections, the size of VMS quotas, the names and characteristics of batch queues, available disk space, the SETUP command, the System Back-Up Frequency, proxy accounts, MultiNet information, various applications, and features of local help libraries.
Prerequisite:	Good knowledge of the VAX and the VMS operating system
Length of Class:	One 1-hour session
Date and Time:	January 11, 1991 (Friday), 9:00 a.m. to 10:00 a.m.
Location:	Building 221, Room A-261
Instructor:	Dave Lifka

INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

Goals:	To learn to use Wylbur, an interactive system that provides a convenient interface for IBM MVS batch processing. To learn about the IBM MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for IBM batch execution.
Length of Class:	One 3-hour session/lab
Date and Time:	January 15, 1991 (Tuesday), 9:00 a.m. to noon
Location:	Building 221, Room A-261
Suggested Reading:	*SLAC Wylbur Tutorial* *OBS Wylbur Reference Manual*
Instructor:	Mike Thommes

INTRODUCTION TO VAX/VMS

Goals:	To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).
Length of Class:	One 3-hour session
Date and Time:	January 16, 1991 (Wednesday), 9:00 a.m. to noon
Location:	Building 221, Room A-261
Instructor:	Dave Lifka

INTRODUCTION TO UNICOS

Goals:	To learn the basics of the Cray UNICOS file system, space management, and shell programming, as well as basic Unix commands. To learn how to use the Network Queueing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the IBM MVS front-end station and the Laboratory-Wide Local Area Network.
Length of Class:	Two 3-hour sessions
Dates and Time:	January 16 and 21, 1991 (Wednesday and Monday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Suggested Reading:	*A Practical Guide to UNIX System V* (0-8053-8915-6) *UNICOS Primer* (SG-2010)
Instructor:	Tom Canfield

PROGRAMMING IN VAX/VMS

Goals:	To learn to use the VAX/VMS system. This class will include VAX Fortran programs, suggestions for writing basic Digital Command Language (DCL) command procedures (including a LOGIN.COM), the usage of the VMS system debugger and the interprocess communications features, and an overview of the aspects of VMS internals affecting program performance.
Length of Class:	One 3-hour session
Date and Time:	January 21, 1991 (Monday), 9:00 a.m. to noon
Location:	Building 221, Room A-261
Instructor:	Dave Lifka

USING CMS WITH IBM 3270-COMPATIBLE DISPLAY TERMINALS

Goals:	To learn to use CMS with an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or a line-oriented terminal capable of using the Hydra Protocol Converter to send and receive electronic mail; to write documents and memos; to organize information in files; to create program, text, and data files; to manipulate files with the editor; to invoke programs like statistical and graphic packages; and to get printed reports.
Length of Class:	Two 2-hour lectures Two 1-hour labs
Dates and Time:	January 22 and 23, 1991 (Tuesday and Wednesday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-216
Suggested Reading:	*IBM VM System Product: CMS Primer* (SC24-5236) *CMS at ANL* (ANL/TM 423)
Instructor:	Pete Bertoncini

COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH	Introduction and Advanced Concepts of Xedit

DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

To register for a class, call extension 2-5405.

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